GameDevelopers
Conference
March 4-8, 2003
San Jose, CA
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BETTER GAMES
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"Next year (in 2003) Nokia expects to ship 50 to 100 million devices that have a calar display and an open applicatian develapment platform. Of these phanes, we expect roughly 10 million will be Series 60-based devices."

— Jorma Ollila, Chairman and CEO, Nokia
November 5th 2002

Game Developers Conference

Nokia's global platforms and distribution channels give you an unparalleled opportunity to put your games in the hands of consumers around the world.

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+ Check out Nokia's sessions during GDC and learn how to build games for the N-Gage™ mobile game deck and Nokia's platforms

SESSIONS: **Developing Games for N-Gage™ from Nokia**
When: Thursday, March 6, 10:15am - 11:15am and Friday, March 7, 10:30am - 11:30am
Where: San Jose Convention Center, A8
Speaker: Ilkka Raiskinen Senior Vice President, Entertainment Group, Nokia

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Develop and deploy mobile applications on the world's largest installed base of mobile devices: **www.forum.nokia.com/games**

NOKIA

welcome

Dear GDC Delegate,

Every mature industry shares knowledge for the greater good of cultivating the market. In the game development industry we're not only lucky enough to have the opportunity to grow the market in terms of dollars, euros and yen, we also have a unique opportunity to nurture and feed its creative capital.

One idea spawns three. Three begets nine. Idea eight gives birth to an entirely new genre. This is why our industry has grown so rapidly in the last 25 years and why it will continue to grow in the next 25.

This year at the GDC over 300 lectures, panels, tutorials, and roundtables are designed to spark that kind of creative thinking and facilitate a healthy exchange of ideas that propel the development of games forward. Warren Spector's game design keynote explores the ways we can innovate in a risk-averse environment. Will Wright's lecture titled "Dynamics for Designers" focuses on using dynamic literacy as a middle ground or "shared language" between programmers and designers. These are just two examples of industry leaders addressing the most crucial issues affecting development today.

Historically, the agendas for emerging markets have been set at the GDC. This year, GDC Mobile features keynotes from Takeshi Natsuno of NTT DoCoMo and Ilkka Raiskinen of Nokia. The GDC Expo features the latest in tools and technologies. Events including the Programmers Challenge, the Experimental Game Workshop, the Independent Games Festival, and the Real-Time Reel highlight our community's dedication to our craft and our unique identity. The Game Developers Choice Awards once again honor the game industry's most important people, the developers.

Welcome to Game Developers Conference and thank you for contributing to our industry's creative capital.

Best Wishes,

Alan Yu
Director
Game Developers Conference

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UNITING THE GLOBAL GAME DEVELOPMENT COMMUNITY

SURVIVING CHANGE IS OUR TOUGHEST CHALLENGE...

The huge scale of today's development projects is forcing game developers to change quickly from a small, loosely organized group of individual performers to an efficient production group — while retaining creativity. Surviving that change is the toughest challenge developer groups face now.

Many game developers have already achieved this. Those who don't will not survive.

The IGDA's Business Committee hopes to raise the level of professionalism and efficiency in the development community at large. As an IGDA director and co-chair of the Business Committee, I'm working on projects that specifically help developers overcome that hurdle.

More professional, more efficient developers will mean fewer conflicts with publishers, more alignment on creative vision, and cost efficiencies, which can translate into either less expensive game development or bigger and better games.

KATHY SCHOBACK

KATHY SCHOBACK
DIRECTOR OF EXTERNAL DEVELOPMENT & PUBLISHING
SEGA

Game developers must play a major part in helping the industry evolve.
Join the IGDA and get involved with the committees!

www.igda.org/join

The IGDA is sponsored in part by:

RenderWare Alias|wavefront igda international game developers association

general information

Attendee Services

Conference & Tutorial Registration
Street Level
Convention Center Lobby

- **Monday, March 3**
  3-5pm
  Early Registration for Giga Pass, Tutorials Only Pass, Upgrades, Mobile Pass, Audio Plus Pass, & VIP Pass Holders Only
- **Tuesday, March 4**
  8am-4pm
  Early Registration for Giga Pass, Tutorials Only Pass, Upgrades, Mobile Pass, Audio Plus Pass, & VIP Pass Holders Only
  12-4pm
  All Attendees
- **Wednesday, March 5**
  9am-4pm
- **Thursday, March 6**
  7:30am-6:30pm
- **Friday, March 7**
  8:30am-6:30pm
- **Saturday, March 8**
  8:30am-3:30pm

Expo Pass Registration
Street Level
Convention Center Lobby

- **Thursday, March 6**
  9am-6:30pm
- **Friday, March 7**
  9am-6:30pm
- **Saturday, March 8**
  10am-3:30pm

Expo Hours
Exhibit Level, Halls 2 & 3
Convention Center

- **Thursday, March 6**
  10am-6:30pm
- **Friday, March 7**
  10am-6:30pm
- **Saturday, March 8**
  11am-3:30pm

ExpoSuite Hours
Exhibit Level, Hall 1
Convention Center

- **Thursday, March 6**
  9am-6:30pm
- **Friday, March 7**
  9am-6:30pm
- **Saturday, March 8**
  10am-3:30pm

GDC Information Booth
Street Level
Convention Center Lobby
If you need help or have a question, please go to the GDC Information Booth located on the street level across from registration. The Information Booth is open during event hours.

Lunch
Lunch is for conference & tutorial attendees only.

- **Tuesday & Wednesday**
  12:30-2pm
  Exhibit Level & Street Level
  Convention Center
- **Thursday & Friday**
  1-3pm
  Exhibit Level, Expo Floor,
  Convention Center
  Thursday's lunch sponsored by:

Friday's lunch sponsored by:

- **Saturday**
  1-2:30pm
  Exhibit Level, Expo Floor,
  Convention Center

Conference Associates
The GDC is blessed to have the most knowledgeable corps of volunteers in the industry. Whether you're looking for a class, a shuttle bus, or a party, you'll inevitably need help with something. That's when you'll find one of our Conference Associates nearby, ready to dispense as much information as you can handle. Look for them in their lime green t-shirts wherever GDC events are taking place.

Literature Tables
Exhibit Level
Convention Center
If you have flyers, brochures or other propaganda to distribute, you're invited to place them on the literature tables located on the Exhibit Level of the convention center. Please check with the Conference Associate in the area and keep it limited to one stack of materials. Literature distribution is limited to conference attendees only.

Session Information

Facilities
Convention Center, San Jose Hilton, the Civic Auditorium & The Fairmont
All conference sessions take place at one of the locations listed above. Conference sessions are open only to paid conference attendees, unless otherwise noted.

Session Types
Open to conference attendees only:

- **Lectures**
  Involve one or more speakers and a speech.
- **Panels**
  Involve one or more speakers with audience participation highly encouraged. Class sizes are generally limited but some are larger to accommodate anticipated demand.
- **Roundtables**
  Open discussions on a tightly focused topic. Attendance is limited so arrive early if you want a seat. Most roundtables are offered more than once, so check your schedule for repeat times.
- **Tutorials**
  Day-long intensives offered on Tuesday & Wednesday. Pre-registration is required for tutorials.
- **Keynotes**
  Highlighted sessions are for conference attendees only.
- **Sponsored Sessions**
  Classes sponsored by exhibiting companies to better deliver the nuts and bolts of their message to attendees. Look for announcements of new products and technologies.

Open to all attendees:

- **Expo Pass**
  Five featured sessions of general interest to all. Open to all attendees. See page 17 for Expo Pass Sessions.
- **Group Gathering**
  A chance for like-minded developers to get together for open discussion and networking at the IGDA Booth, Concourse Level.

general information

Exhibitor Services

Exhibitor Registration
Street Level
Convention Center Lobby

- **Monday, March 3**
  3-5pm
- **Tuesday, March 4**
  8am-4pm
- **Wednesday, March 5**
  9am-4pm
- **Thursday, March 6**
  7:30am-6:30pm
- **Friday, March 7**
  8:30am-6:30pm
- **Saturday, March 8**
  8am-3:30pm

Speaker Services

Speaker Registration
Street Level
Convention Center Lobby
Speaker Registration will take place in the Convention Center, Street Level during conference registration hours. Please note that sponsored session speakers must register at exhibitor registration.

Speaker Ready Room
Exhibit Level, Room G
Convention Center
All speakers may use this room to prepare for their conference sessions. This room is equipped with a computer, a printer and refreshments.

Press Services

Press Registration
Street Level, Room N
Convention Center
Press registration is open during conference registration hours and will take place in Room N, which is located on street level of the convention center.

Press Room
Street Level, Room N
Convention Center

- **Monday, March 3**
  3-5pm
- **Tuesday, March 4**
  7am-4pm
- **Wednesday, March 5**
  8am-4pm
- **Thursday, March 6**
  7:30am-6:30pm
- **Friday, March 7**
  8am-6:30pm
- **Saturday, March 8**
  8am-3:30pm

Transportation

Shuttle Buses
For your convenience, free shuttle buses will circulate between the convention center and the following GDC Hotels:

- Hotel de Anza
- Hyatt San Jose Airport
- Ramada Limited
- Wyndham Hotel

Shuttle buses will run at approximately 30 minute intervals (15 minute intervals during peak hours), Tuesday through Saturday.

Getting Around

Taxis
Yellow Checker Cab Company
408.293.1234

Public Transportation
Most VTA Bus routes operate every 15-30 minutes weekdays. Bus line 22 provides service 24 hours a day. For more information, please call 408.321.2300.

The city of San Jose offers Light Rail service to many popular locations. For more information, please call 408.321.2300.

Other Services

Book Store
BreakPoint Books is the official GDC book vendor, located on the Exhibit Level. A broad selection of books from the speakers and supporting material highlight a vast array of available titles. Take a break from your sessions and browse the unique offering.
Sponsored by: break point Books & More

Bulletin Board & Message Center
Exhibit Level
Convention Center

Conference-At-A-Glance
Exhibit Level
Convention Center
To keep track of everything that's going on, be sure to check the Conference-At-A-Glance Schedule, located on the Exhibit Level of the Convention Center. This schedule will contain the most current information available.

Coffee Breaks
Coffee & other refreshments are available during regular breaks in the morning and afternoons for paid conference attendees.

First Aid
Exhibit Level, Hall 2
Convention Center
First Aid is located in the back of Hall 2 of the Convention Center.

general information

Lobby Bar
Exhibit Level
Convention Center

Sponsored by:

Lost & Found
Exhibit Level, Almaden Lobby
Convention Center
Please check the Show Office in the VIP Lounge during conference & exhibit hours for lost and found information.

Massage Service
Massage service will be available to GDC attendees on the Exhibit Level of the Convention Center for the duration of the conference.

Conference Session Audio CD-ROM
Stop by the official GDC Audio CD-ROM Desk to order audio recordings from your favorite sessions or those special sessions you were unable to attend. Special discounts are available for multiple orders. The Audio CD-ROM Desk will be staffed during open conference hours, and will be located in Registration.

GDC T-Shirt
A complimentary GDC T-shirt is available to attendees of the Game Developers Choice Awards. Please see the Choice Awards program for more information. GDC T-shirts will also be available for purchase at the Bookstore.

Sponsored by:

Proceedings
Abstracts, outlines, notes, code, resources and valuable information from many of our conference sessions are available for purchase on CD-ROM proceedings. Stop by GDC Registration in the Convention Center Lobby to pick up your copy at a special onsite price. Copies are limited.

Minors
Due to safety concerns, no one under the age of 18 (including infants in strollers) will be permitted on the show floor at any time during the Game Developers Conference.

A Message About Your Badge
Your badge is valuable. A fee will apply, equal to the original purchase price of your GDC pass, should a duplicate badge be requested for lost, misplaced or stolen badges.

GamaNetwork

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events

TUESDAY, MARCH 4 & WEDNESDAY, MARCH 5

Game Developers Conference Mobile

9am-6:30pm • Regency Fairmont Hotel

Leaders from the mobile communications industry meet with the world's best game developers at GDC Mobile. Network operators, content aggregators, technology and infrastructure providers and leading game developers will share information, explore opportunities and discover how to deliver compelling mobile entertainment to millions of consumers worldwide.

Keynotes:
Takeshi Natsuno, Executive VP, NTT DoCoMo i-mode
Ilkka Raiskinen, Senior VP, Media & Entertainment, Nokia

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THURSDAY, MARCH 6

Acacia Research Breakfast

8am-1pm • Gold Room, Fairmont

Acacia Research Group hosts its fourth annual breakfast session on key game development market trends. This year Acacia presents two lively panel sessions on the future of game platforms and development tools with expert panelists from companies including Alias|Wavefront, Criterion Software, Metrowerks, NXN Software, and more. Additionally, the event features a special keynote address ("Expectations for the Tools and Middleware Industry from a Console Maker") by Teiji Yutaka of Sony Computer Entertainment Inc. and demonstration sessions from select companies. Attendance is complimentary.

Real-Time Reel 2003 Premiere

1pm • Game Theater

See the year's best real-time game art clips. The GDC Real-Time Reel celebrates the technological and artistic achievement of real-time gameplay.

Booth Crawl

5:30-6:30pm • GDC Expo Floor

Explore the Expo floor with a refreshment in your hand, seeking out information on the latest innovations presented at the GDC Expo. Talk with company experts in a more relaxed atmosphere, and get your questions answered as you snack on happy hour goodies and enjoy catching up with technology—and friends.

3rd Annual Game Developers Choice Awards

6:30-9:30pm • Civic Auditorium

Please join in honoring the people behind the game. The Choice awards celebrate developers and are meaningful year after year because they are defined and determined by developers. Your support directly contributes to the worldwide recognition of games as the art form of our generation. The 5th Annual Independent Games Festival winners will also be announced. The ceremony will immediately be followed by cocktails, hors d'oeuvres, and music.

Presented by igda

Sponsored by NVIDIA. RenderWare

The Demo Scene Reel

Game Theater

The third annual demo scene reel will showcase products from the last year of the demo scene. Those fantastic real-time programmer/hacker compilations of technical and artistic expertise, those creative outlets of the underground development world, those inspiring synesthesia of sight and sound . . . Demos!

FRIDAY, MARCH 7

Experimental Gameplay Workshop

Jonathan Blow
4-6:30pm • A7, Convention Center

Traditional art forms like music, film and literature have established mechanisms for encouraging experimental works, and for bringing these new ideas into the mainstream creative process. These mechanisms prevent an art form from iterating endlessly on proven successes and ultimately stagnating creatively. The Experimental Gameplay Workshop aims to provide a platform for game designers to showcase risky new work and discuss it with their peers, legitimize gameplay research, and foster a community of experimental game designers. The gathering consists of several presentations by experimental game authors, followed by peer discussion. Presentations are formal 20-minute sessions where an experimenter demonstrates a game and gives a short lecture about the game's experimental aspects. Each presentation will focus on the new gameplay, tradeoffs made to achieve it, difficulties overcome, and problems remaining in the design. A short discussion session and Q&A follow each presentation.

Hospitality Suite Night

7:30-9:30pm • Fairmont Hotel, Ballroom Level

Network with other industry professionals while enjoying food, drink, and entertainment hosted by GDC exhibitors.

As part of this year's Hospitality Suite Night, join us for the Great GDC Jam Session. As he has done since 1992, legendary game music composer, The Fat Man, leads an all-star rock-n-roll jam session. The players are NOT a band. This is a real jam, with real, brilliant, game audio guys playing live! Featured performers are Larry the O, Clint Bajakian, Peter McConnell, and Michael Land.

Focus On Fun

Check out the Latest
Game Development
Technologies

ExpoSuite 134

Game Development. It's Serious Business.

Check out a Premier Press GDC Sponsored Session:

"The Trials and Tribulations of Running a Value Game Company"

"First Steps to Vertex and Pixel Shader Programming with DirectX"

"Leveraging Online Resources to Make It as an Independent Game Developer"

Visit us at Booth 519 during GDC and pick up your free gift!

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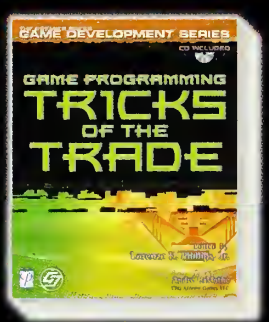

The Premier Press Game Development series.

Also from Premier Press, the Inspired series on 3D animation.

Available at your favorite bookstore or call 1.800.842.3636 to order.

meetings

Programmer's Challenge

6:30-7:30pm • A2, Convention Center

What hilarious GDC game show will be holding its third installment right after the Friday Night Booth Crawl?

A. The 10th Annual Free T-shirt Hoard-a-thon
B. Hospitality Suite Scavenger Hunt
C. The Programmer's Challenge, featuring all your favorite coders from OddWorld, Muckyfoot, RAD Game Tools, definition six, and Ion Storm.

If you answered C, you're right! Everyone's favorite GDC game show is back in an all new time slot. Watch two all-star programming teams face off as they answer raucous questions ranging from boolean logic to which ex-id Software employee they'd most like to see test-pilot Armadillo Aerospace's first manned flight to the moon. Don't miss it!

ONGOING EVENTS

Fairmont Hotel Bar

Fairmont Hotel Lobby

When the conference is done for the day and a party is not being offered, meet friends and colleagues and network with potential business partners in a sophisticated setting.

Game Developer Choice Awards Pavilion

Expo Hours • Booth 1442

Stop by the Game Developer Choice Awards Pavilion to check out the nominated games.

Presented by igda

Sponsored by RenderWare

GDC Real-Time Reel 2003

Expo Hours • Game Theater

See the year's best real-time game art clips. The GDC Real-Time Reel celebrates the technological and artistic achievement of real-time gameplay.

Game Room

Wednesday, March 6 – Friday, March 8
7pm-12am • Plaza Room, Hilton

When you're ready to de-amp, here's a more relaxing setup: a room full of board games and your developer compadres. Parcheesi, anyone?

Online Lounge

Expo Hours • Booth 1502

When it's time to rest your weary feet, exhausted from walking the expansive show floor, stop by the Online Lounge. Check your email, surf the web, or just sit back and relax in a comfortable setting.

5th Annual Independent Games Festival Pavilion

Thursday, March 6-Saturday, March 8
Expo Hours • Booth 1556

The Independent Games Festival was established in 1998 to encourage innovation in game development and to recognize the best independent game developers. The finalist games are on display at the IGF Pavilion on the GDC Expo Floor. This year's winners will be announced at the Game Developers Choice Awards ceremony.

Craft Sponsor, Game Design

Microsoft DIRECTX

Craft Sponsor, Technical Excellence

intel

Got Art?

Expo Hours • Booth 1502

Got Art? Get Quadro! NVIDIA invites all artists attending GDC to participate in its third "Got Art?" drawing contest. The contest will run all three days of the exhibition. NVIDIA will start a new contest every half hour. Artists will compete 10 at a time in 20-minute heats, using NVIDIA-provided traditional art materials such as charcoal, pastels, crayons and paper. The winner of each new contest wins an NVIDIA Quadro professional graphics card and every entrant is given a t-shirt for participating. Each day's contestants are also entered into a random drawing for daily prizes, including software from top digital content creation software companies.

Sponsored by: NVIDIA.

MEETINGS

IGDA Annual Meeting

Friday, March 7 • 1:15-2:45pm
B1, Convention Center

The International Game Developers Association's board of directors and executive management gives developers a rundown of the association's progress over the past year, as well as indicate what's in store for the coming year. This will also be the time when new board candidates will be presented. There will be a Q&A period to get feedback and input from the community. The International Game Developers Association (IGDA) is an independent, nonprofit association for developers of entertainment software. The IGDA's mission is to build a worldwide community of game developers which leverages the expertise of its members for the betterment of the industry and the development of the art form.

IA-SIG Town Hall Meeting

Friday, March 7 • 1:30-2:30pm
C4, Convention Center

The IA-SIG was born out of the Audio Town Meeting at the Computer GameDevelopers Conference in April of 1994. The Interactive Audio Special Interest Group (IA-SIG) exists to allow developers of audio software, hardware, and content to freely exchange ideas about "interactive audio". The goal of the group is to improve the performance of interactive applications by influencing hardware and software design, as well as leveraging the combined skills of the audio community to make better tools.The IA-SIG has been influential in the development of audio standards, features, and APIs for Microsoft Windows and other platforms, and has helped numerous hardware companies define their directions for the future. Anyone with a commercial interest in multimedia audio is encouraged to attend this town hall meeting. It is a great chance to get updates about IASIG activities during the past year and to influence planning for the year ahead.

New Tools Buzz at the Game Developers Conference: San Francisco SIGGRAPH and Silicon Valley SIGGRAPH Professional Chapters Joint Meeting

Friday, March 7 • 6-10pm
A7, Convention Center

The public is invited to attend the March SIGGRAPH joint meeting.

Networking Social: The meeting will open with refreshments during a networking social. During the social a screening of student animation will highlight new game design talent.

New Tools for Gaming: The program will feature presentations and Q&A with high profile game developers discussing the new exciting technologies that are crucial to the games industry and showcasing the work these tools make possible.

SF Bay Maya Users Group

Friday, March 7 • 7pm
B1, Convention Center

Come join us at our third annual GDC games specific user group meeting. Industry professionals from the largest game companies will share their insight and expertise on their Maya usage. Great giveaways and food.

track & general interest keynotes

track keynotes

Programming Keynote
Little to Big: What Changes?
Fred Brooks
Saturday, March 8 • 9-10am | A3, Convention Center
See page 84

Game Design Keynote
Sequels and Adaptations: Design Innovation in a Risk-Averse World
Warren Spector
Thursday, March 6 • 4:30-5:30pm | A3, Convention Center
See page 52

Business & Legal Keynote
Applying the Lessons Learned from Korea and Lineage to Today and Tomorrow's Online Games
TJ Kim
Friday, March 7 • 10:30-11:30am | Almaden Ballroom, Hilton
See page 42

Production Keynote
Maintaining Creative Focus and Building Blockbusters
Bruce McMillan
Thursday, March 6 • 12-1pm | Almaden Ballroom, Hilton
See page 74

Audio Keynote
Aural Subjectivity, A Personal Perspective
Dane Davis
Saturday, March 8 • 2:30-3:30pm | F1, Convention Center
See page 34

Visual Arts Keynote
Fooling All of the People All of the Time
Bill Kroyer
Friday, March 7 • 4:30-5:30pm | B2, Convention Center
See page 104

general interest keynote

Fleshing out Middle Earth: Weta Digital Creatures
Jon Labrie
Thursday, March 6 • 12:45-1:45pm | Civic Auditorium

The realization of Peter Jackson's vision for *The Lord of the Rings Trilogy* demanded the creation of world class creative teams across a number of disciplines. Weta Digital had a staff of 16 when research and development on the project began in 1997. The completion of work on The Two Towers in 2002 saw growth to almost 350 staff members, an Academy Award for work on the first film, and a substantial library of techniques uniquely suited to the task at hand.

This keynote discusses specific approaches to crowd animation, creature setups, digital doubles, Ents, the specific challenges involved in bringing Gollum to the screen, and how the concept of 'creative iteration' informed the development of one of the world's largest digital visual effects infrastructures.

BIO Jon Labrie has been a digital systems analyst for more than 20 years. A native of Los Angeles, Jon spent much of his early career assisting in the design and implementation of Unix-based workstation and server solutions for organizations like NASA, Lawrence Livermore, TRW, Northrop/Grumman, and Metrolight Studios. A personal interest in filmmaking eventually led to a specialization in digital visual effects and associated IT infrastructures.

Jon joined Weta Digital, Ltd. in December of 1995. As chief technical officer from 1995-2002 he is the principle architect of the digital infrastructure used to create the Academy Award© winning digital visual effects in *The Lord of the Rings Trilogy*.

Jon recently stepped down from his role as CTO to found Blister, a Wellington-based mobile game company. As Digital Systems Architect he continues to advise Weta on technical growth strategies for *The Return of the King*. His credits include *Broken Arrow*, *Independence Day*, *The Frighteners*, *Contact*, *The Fellowship of the Ring*, and *The Two Towers*.

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advisory board bios & recommendation

Hal Barwood

LucasArts Entertainment

Hal Barwood is a project leader at LucasArts, where he was designer, writer and team leader on Indiana Jones & the Fate of Atlantis, a PC adventure game, Big Sky Trooper, a Super Nintendo RPG, Indy's Desktop Adventures & Yoda Stories, a pair of PC desktop diversions, and Indiana Jones & the Infernal Machine, a real-time 3D action-adventure. In addition, he directed the live-action video for Rebel Assault II, a *Star Wars* combat game. He is currently working on a new slam-bang tale.

Hal Barwood recommends these classes:

Deathmatch: Ted Price vs. Jason Rubin
Ted Price & Jason Rubin
Game Design • *See page 56*

Designing a Ratchet and Clank Level
Brian Allgeier
Game Design • *See page 56*

Game Design Methods of Ico
Kenji Kaido & Fumito Ueda
Game Design • *See page 58*

Mobile Games: Japan and the Future
David Collier
Business & Legal • *See page 47*

Old School: Arcade Games in the Golden Age
Mark Cerny, Eugene Jarvis, Ed Logg, Tim Skelly
Game Design • *See page 60*

Louis Castle

Westwood Studios

Louis Castle is the co-founder and general manager of Westwood Studios, a leading Electronic Arts development studio. Westwood is best known for its Command & Conquer line of products but has also published many original and licensed products over its 16-year history, including Blade Runner, The Lion King, Monopoly and Dungeons & Dragons—Eye of the Beholder. Louis is a longtime supporter and advisory board member for the Game Developers Conference and has spoken at GDC, E3, and CES trade shows for years on numerous topics in business, game design, art direction, and technical R&D. "What drives me today is seeing other team members succeed and thrive as they continue to make great computer gaming products," he says.

Louis Castle recommends these classes:

Creating a Cinematic Experience
Rick Giolito
Game Design • *See page 55*

FilmGame: Adapting Lord of the Rings
Neil Young
Game Design • *See page 58*

Scaling the Software Development Process
Greg Kearney, Larry Mellon, Darrin West
Programming • *See page 100*

Sequels and Adaptations: Design Innovation in a Risk-Averse World
Warren Spector
Game Design • *See page 52*

Mark Cerny

Cerny Games

Mark Cerny has been working in game design and technology for 20 years, ranging from 1982's Marble Madness, which he designed and programmed for Atari coin-op, to 2001's Jak & Daxter. After his stint at Atari and several years with Sega in Japan, Mark founded and managed the Sega Technical Institute in the US, where he also worked on Sonic 2 and Kid Chameleon. Mark then went to Crystal Dynamics as its first technical employee, then to Universal Interactive Studios, where as president he oversaw the creation of the Crash Bandicoot and Spyro the Dragon series. In 1999 Mark established Cerny Games Inc. as a game design consultancy. Cerny Games has now had a major role in four released games and is presently involved a number of upcoming character-action projects.

Mark Cerny recommends these classes:

Making Games More Fun: Methods for Playtesting Games
Bill Fulton & Michael Medlock
Game Design • *See page 60*

The Puzzlemaker's Survival Kit: Principles, Case Studies and Design Process
Scott Kim
Game Design • *See page 61*

How to Write Good "Bad Dialogue": Cramming Storytelling into an Action Game
Sean Clark & Ryan Kaufman
Game Design • *See page 59*

Bossy Behavior: Patterns and Techniques for Boss Design
Luis Barriga
Game Design • *See page 54*

How to Make Your Game Successful in Japan
Ryoichi Hasegawa & Tsurumi Roppyaku
Game Design • *See page 59*

Doug Church

Doug Church has been in the game industry since 1990, working on a variety of PC titles (Ultima Underworld, System Shock, Thief a bit of Flight Unlimited thrown in) at what became LookingGlass Studios. He left LookingGlass in late 1999 and since then has consulted on a variety of titles, including a tiny bit on Ion's Deus Ex, and recently worked on Harmonix's Frequency for the PS2. Officially a programmer, he actually ends up doing mostly game design and some project management, with varied impact. He has been coming to GDC for 10 years and still finds it a pleasing blend of frustration and exhilaration.

Mark DeLoura

Editor of Game Programming Gems

Mark DeLoura is currently the manager of developer relations at Sony Computer Entertainment America. He has also been editor-in-chief of *Game Developer* magazine, the lead software engineer in the developer support group at Nintendo of America, an arcade game programmer, and a game industry consultant. In his spare time, Mark created the *Game Programming Gems* series of books, compilations

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advisory board bios & recommendations

of programming nuggets from professional game developers. The third book in the series is currently under construction.

Mark DeLoura recommends these classes:

Experimental Gameplay Workshop
Jonathan Blow
Game Design • *See page 57*

FilmGame: Adapting Lord of the Rings
Neil Young
Game Design • *See page 58*

Game Design Methods of Ico
Kenji Kaido & Fumito Ueda
Game Design • *See page 58*

Programming Keynote: Little to Big: What Changes
Fred Brooks
Programming • *See page 84*

Spherical Harmonic Lighting: The Gritty Details
Robin Green
Programming • *See page 101*

Alex Dunne
Gamasutra.com

Alex Dunne is the executive producer of Gamasutra.com, as well as the chairman of the Independent Games Festival, which is held annually at the Game Developers Conference. He is the former editorial director for *Game Developer* magazine and Gamasutra.com, and co-authored the book *The Game Developer's Marketplace*, published by Coriolis.

Julian Eggebrecht
Factor 5

Julian Eggebrecht is co-founder of Factor 5, a game and technology developer located in Marin County, California. Factor 5 was founded in Germany in 1989 and moved to the U.S. in 1996. Factor 5 is a technology partner for Nintendo's Gamecube console and provider of the MusyX sound tools. Julian's work includes the Turrican line of games, Star Wars: Rogue Squadron (LucasArts), Ballblazer Champions (LucasArts), Indiana Jones – Greatest Adventures (LucasArts), International Superstar Soccer Deluxe (Konami), Contra: The Alien Wars (Konami). Most recently he was director of Star Wars: Rogue Squadron II: Rogue Leader for the Nintendo Gamecube. Julian is Factor 5's president and lead director/producer, currently working on two titles.

Chris Hecker
definition six

Chris Hecker is technical director of definition six, a small game development company working on high-end physics and graphics technologies. Chris has been on the advisory board for the Game Developers Conference for many years and is a regular speaker at the GDC, SIGGRAPH, and other conferences. A frequent contributor to *Game Developer* magazine, Chris was the technical columnist for the magazine for two years and is currently the editor-at-large. He is also on the editorial board of the computer graphics research publication *The Journal of Graphics Tools*.

Chris Hecker recommends these classes:

Towards Building a Fully-Realized Interactive Drama
Michael Mateas & Andrew Stern
Game Design • *See page 63*

Dynamics for Designers
Will Wright
Game Design • *See page 57*

Experimental Gameplay Workshop
Jonathan Blow
Game Design • *See page 57*

Representational AI Planning Techniques
Charles Martin
Programming • *See page 100*

Physics and Animation, Blending Kinetics and Kinematics in a 3rd Person Shooter
David Wu
Programming • *See page 98*

Elaine Hodgson
Incredible Technologies

Elaine A. Hodgson, president and CEO of Incredible Technologies, a $50 million Rolling Meadows, Ill., company and the country's largest privately held game manufacturer in the coin-operated amusement industry, has been bringing Internet technology successfully to main-street bars and taverns since 1996. In 1985 Hodgson combined her love of games and proficiency in programming when she founded Incredible Technologies with partner Richard Ditton. After 10 years of moderate success, they struck gold with the release of Golden Tee 3-D Golf in 1996.

Elaine Hodgson recommends these classes:

Art Directors Panel: Aesthetics and the Almighty Dollar
Steve Caterson, Linda Lubken, Cyrus Lum, Jonathan Peedin, Lee Petty, Steve Reid
Visual Arts • *See page 106*

Five Physics Simulators for a Human Body
Chris Hecker
Programming • *See page 91*

My Matrix Experience: A Survival Guide to Working with Movie Licenses
Stuart Roch
Production • *See page 80*

Profiling the Female Gamer: A Look at How She Buys and Plays
Mia Consalvo, Sheri Garner Ray, Clarinda Merripen, Sheri Pocilujko
Game Design • *See page 61*

The Puzzlemaker's Survival Kit: Principles, Case Studies and Design Process
Scott Kim
Game Design • *See page 61*

Rob Huebner
Nihilistic Software

Robert Huebner is a co-founder of Nihilistic Software, a small development team located in Marin County, California. Robert's previous work includes Jedi Knight: Dark Forces 2 from LucasArts, Descent from Parallax Software, and contributions to Starcraft by Blizzard Entertainment. Nihilistic's first title, Vampire: the Masquerade-Redemption, was a top-10 seller when released in March 2000. Robert is Nihilistic's director of technology, creating new engines and tools for Nihilistic's next project being developed for next-generation console systems.

Rob Huebner recommends these classes:

Animation System Implementation: What Works and What Doesn't
Jake Simpson
Programming • *See page 87*

The Continuous World of Dungeon Siege
Scott Bilas
Programming • *See page 89*

Frame Buffer Postprocessing Effects in DOUBLE-S.T.E.A.L (Wreckless)
Masaki Kawase
Programming • *See page 92*

Spherical Harmonic Lighting: The Gritty Details
Robin Green
Programming • *See page 101*

Technology of Jak and Daxster
Stephen White
Programming • *See page 102*

advisory board bios & recommendations

Cyrus Lum

Inevitable Entertainment

Cyrus Lum has been an artist in the computer game industry for over 10 years. He got his start at Strategic Simulations Inc. creating computer artwork for games based on the Advanced Dungeons & Dragons license. After 4 years at SSI, Cyrus moved on to Crystal Dynamics, Inc., founded Crystal's art department, and served as the art director. His work can be seen in such game products as Crash 'N Burn, Total Eclipse, and The Horde.

Two years later, Cyrus packed up and left California for Texas and Iguana Entertainment, Inc. There, he founded the advanced technology group which handles Acclaim Studio's high-end 3D rendering and animation for games. In March of 2000, Cyrus cofounded Inevitable Entertainment—a video game development company dedicated to creating innovative product for the next generation game consoles. He serves as Inevitable's art director.

Cyrus Lum recommends these classes:

Creating a Cinematic Experience
Rick Giolito
Game Design • *See page 55*

Beyond Bouncing Boxes: The Physics of Things That Bend and Break
Jeff Lander & James O'Brien
Programming • *See page 88*

Character Rigging and Animation
Martin Coven & Mookie Weisbrod
Visual Arts • *See page 107*

Deathmatch: Ted Price and Jason Rubin
Ted Price & Jason Rubin
Game Design • *See page 56*

State of the Art: Building 3D Environments and Models Review Panel
Steve Theodore, Chris Williams, Ian Milham, Scott Dalton, Tayhra Keger
Visual Arts • *See page 111*

Masaya Matsuura

NanaOn-sha

Masaya Matsuura graduated from Ritsumeikan University with a major in Industrial Sociology. An encounter with an Apple II Computer software "Kaleidoscope" at age nineteen changed his life dramatically. The images were mesmerizing, but he felt something was missing. He added music to it—his very first experience as a producer of computer entertainment. In 1993 Masaya explored new ground by combining music and multimedia with the release of The Seven Colors. It was the first CD-Rom from a Japanese musician and went on to win the Multimedia Grand Prix of 1993. The Seven Colors was followed by TOOL-X in 1994 and Tunin' Blue in 1996, both multimedia music titles that offered completely new ways to enjoy music.

December 1996 saw the release of Parappa The Rapper in Japan. It was like no other game that came before it, and it took Japan by storm. Parappa the Rapper went on to win the 1996 CECA Award, the Japan Software Award, and was named Japan Game of the Year 1997 by the readers of eighteen domestic game magazines. In 1999 Masaya crossed over from rap to hard rock with Um Jammer Lammy, and the game won an SCEI Gold disc after just two months. Masaya's imagination doesn't end with music games. Vib-ribbon, released in Japan and Europe in 1999, is another game revolution that creates gameplay from the player's own favorite music CD. Parappa the Rapper 2 was released in Japan in 2001 and will be available worldwide in 2002.

David Perry

Shiny Entertainment

David Perry is one of the best-known and tallest personalities in the videogame business today. He started developing games 20 years ago in the United Kingdom, and in 1993 Perry formed Shiny Entertainment, based in Southern California. His company's first game, Earthworm Jim, became a Universal Cartoon Studios/Warner Kids Network television hit, a Playmates toy line, and still achieves new licenses today. To date, the games he has been involved in have sold around half a billion dollars at retail. Currently, he is heading up the team making the official game for the highly anticipated sequel to the cult hit movie The Matrix. In his spare time David helps others into the business through his web site, www.dperry.com.

David Perry recommends these classes:

Bossy Behavior: Patterns and Techniques in Boss Design
Luis Barriga
Game Design • *See page 54*

Dynamics for Designers
Will Wright
Game Design • *See page 57*

FilmGame: Adapting Lord of the Rings
Neil Young
Game Design • *See page 58*

Halo: Development Evolved
Jaime Griesemer, Mat Noguchi, Marty O'Donnell
Game Design • *See page 59*

Sequels and Adaptations: Design Innovation in a Risk-Averse World
Warren Spector
Game Design • *See page 52*

34 Ways to Create Emotions in Games
David Freeman
Game Design • *See page 64*

Jason Rubin

Naughty Dog

Jason Rubin, co-president and co-founder of Naughty Dog, has been developing games since 1985. Jason, partner Andy Gavin, and the Naughty Dog team are responsible for the creation of the Crash Bandicoot and Jak and Daxter franchises, for developing the first four Crash PSX titles Crash Bandicoot (1996), Crash Bandicoot 2: Cortex Strikes Back (1997), Crash Banoicoot: Warpeo (1998), and CTR: Crash Team Racing (1999), and for the groundbreaking PlayStation 2 release Jak and Daxter: The Precursor Legacy (2001). Together, these titles have sold more than 24 million units worldwide, with more than half of the sales coming from outside of the United States. Crash 3 is the only foreign-created and -developed title to have sold more than a million units in

advisory board bios & recommendations

Japan in the history of videogames. At the beginning of 2000, Jason and Andy transitioned Naughty Dog from independent developer to wholly owned subsidiary of Sony Computer Entertainment America. Currently, Jason and Naughty Dog are working hard on more PlayStation 2 titles.

Jez San
Argonaut Software

At 16, Jez founded Argonaut Software from his bedroom, writing books and games for home computers. Nearly twenty years on, Jez is CEO of recently public games developer, Argonaut Games Plc, and co-founded ARC International, the RISC microprocessor spin-off from Argonaut, whose first hardware technology was the ten million-selling "SuperFX chip" 3D RISC accelerator chip designed for Nintendo. Jez's first (successful) game was Star Glider in the mid 80's, and Argonaut's more recent hits include Star Fox and Croc (each of which sold over three million copies). In the last 6 months, Argonaut released Alien Resurrection for Fox, and Aladdin & Emperor's New Groove on PS1 for Disney. Jez sits on the advisory boards of various Venture Capitalists, and is a committee member of BAFTA Interactive as well as the Game Developers Conference.

Jez San recommends these classes:

Beyond Bouncing Boxes: The Physics of Things That Bend and Break
Jeff Lander & James O'Brien
Programming • *See page 88*

Deathmatch: Ted Price and Jason Rubin
Ted Price & Jason Rubin
Game Design • *See page 56*

Halo: Development Evolved
Marty O'Donnell, Jaime Greisemer, Mat Nogouchi
Game Design • *See page 59*

Physics and Animation, Blending Kinetics and Kinematics in a 3rd Person Shooter
David Wu
Programming • *See page 98*

Real-Time Fluid Dynamics for Games
Jos Stam
Programming • *See page 99*

Alan Yu
Game Developers Conference

As director of conferences and events, Alan Yu is responsible for the Game Developers Conference and community relations for the Gama Network. In his previous position as program director, Alan developed the conference programs and managed speaker relations for both the GDC and GAMEXecutive conferences. He is the liaison between the GDC and its group of industry advisors and maintains close ties to both the developer and publisher communities. Alan is a graduate of Sarah Lawrence College in New York.

audio advisory board

Buzz Burrowes
Sony Computer Entertainment America

Buzz Burrowes is director of audio for Sony Computer Entertainment America's Product Development division. He manages Sony's multi-room audio recording facilities in both San Diego and the San Francisco Bay Area. He is also the author of SCEA-PD's audio architecture, a proprietary, full-featured audio engine that includes sophisticated streaming, adaptive MIDI, and sound scripting cores

Brian Schmidt
Microsoft

Brian Schmidt currently serves as program manager for Xbox audio and media at Microsoft, a recent move from his position as program manager for DirectSound and DirectMusic on the DirectX audio team. Brian has been in the multimedia audio industry since 1987 as both a composer/sound designer and technical consultant. As a composer, he has personally composed music for more than 120 interactive games, including John Madden Football, Jurassic Park, and the Star Wars trilogy, and also composed the award-winning music for Crue Ball. He has been contracted for custom game music compositions from Aaron Spelling, Michael Jordan, and Joel Silver, and his work has been shown in both television and film. His "Theme from Narc" (originally done for the videogame Narc) was later recorded and released by The Pixies. Prior to working at Microsoft, Brian was a freelance consultant, working with such companies as Sega, Sony, Capcom, QSound Labs, and several other makers of interactive entertainment, designing interactive audio systems including Capcom's arcade game audio system and the sound system for SEGA Pinball.

Tommy Tallarico
Tommy Tallarico Studios

Tommy Tallarico is the most successful and accomplished videogame composer in history. His music has been heard by hundreds of millions of people all over the world on media such as videogames, television, motion pictures, radio, soundtracks, and even on floats in the Rose Parade in Pasadena. Some of Tallarico's top titles include Earthworm Jim 1 & 2, Disney's Aladdin, Cool Spot, The Terminator, Madden Football, Prince of Persia, the Test Drive series, MDK, Tomorrow Never Dies, Tony Hawk Skateboarding, Spider-Man, Pac-Man World, Knockout Kings, and the Blitz Unreal and Time Crisis series. Upcoming titles include the highly anticipated Unreal 2, Twisted Metal, Metroid Prime, Maximo, and Casper. Tommy has been writing music for videogames for over 10 years. Founded in 1994, Tommy Tallarico Studios is the industry's largest multimedia post-production audio house on the planet, having produced more than 30 titles in 2000 alone. Tommy and his team have won more than 20 best-videogame-soundtrack awards and have worked on more than 175 games totaling over 50 million units sold and grossing over $2 billion in revenue.

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Every art form has a forum for recognizing its greatest achievements. Hollywood has the Oscars, music has the Grammys, and we have the Game Developers Choice Awards.

Started in 2000 with the idea that there is no greater honor than to be recognized by one's peers, the Game Developers Choice Awards are game development's most prized honors. The Choice Awards are meaningful year after year because they are defined and determined by you—the talent behind the game. Please join us to honor the creators of the art form of our generation.

The 3rd Annual Game Developers Choice Awards
Thursday, March 6 • 6:30 pm • Civic Auditorium
The ceremony will be immediately followed by a reception.

Awards will be presented in the following categories:

- **Lifetime Achievement Award**
- **First Penguin Award**
- **Rookie Studio Award**
- **IGDA Award for Community Contribution**
- **Game Innovation Spotlights**
- **Game of the Year**
- **Original Game Character of the Year**
- **Excellence in Audio**
- **Excellence in Game Design**
- **Excellence in Level Design**
- **Excellence in Programming**
- **Excellence in Visual Arts**
- **Excellence in Writing**

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INDEPENDENT GAMES FESTIVAL

The Gama Network established the Independent Games Festival in 1998 to encourage independent game development and to recognize the most innovative games.

There are two sections in the event: the IGF Competition and the IGF Student Showcase.

The IGF Competition is open to all independent developers and awards $20,000 in cash prizes to games in 6 different categories: Innovation in Visual Arts, Innovation in Audio, Innovation in Game Design, Technical Excellence, Audience Award, and the Seumas McNally Award for Independent Game of the Year.

The IGF Student Showcase is a non-competitive event, open only to full-time high school and college students. Ten IGF Competition finalist games and 10 Student Showcase games will be on display March 6-8 in the IGF Pavilion (booth 1556) on the GDC Expo floor.

The IGF Awards Ceremony will take place during the 3rd Annual Game Developers Choice Awards on **Thursday, March 6** at **6:30 pm** in the Civic Auditorium. The ceremony will be immediately followed by a reception.

IGF Competition Finalists:

BaseGolf
Alitius
www.alitius.com

Furcadia
Dragon's Eye Productions
www.furcadia.com

Mr. Bigshot
Mr. Bigshot, Inc.
www.mrbigshot.com

Pontifex 2
Chronic Logic
www.pontifex2.com

Reiner Knizia's Samurai
FKlear Games, LLC
www.klear.com

Strange Adventures in Infinite Space
Digital Eel
www.digital-eel.com

Teenage Lawnmower
Robinson Technologies
www.rtsoft.com

Terraformers
Developed by Pong Interactive HB
www.terraformers.com

Wild Earth
Super X Studios
www.superxstudios.com

Word 'Em Up
Shizmoo Games, Inc.
www.shizmoo.com

Student Showcase Selections

The Adventures of Giuseppi and Mr. Fez: Enemy Mime
Full Sail Real World Education, FL

Breakin' Battle
Michigan State University, MI

Crazy Cross
DigiPen Institute of Technology, WA

Doggone Catastrophe
Georgia Tech, GA

Gates of Temlaha
Cogswell College, CA

Mall Monster
DigiPen Institute of Technology, WA

Toy Trouble
Utrecht School of the Arts, Netherlands

Valence
DigiPen Institute of Technology, WA

Vektor Space
DigiPen Institute of Technology, WA

Zwischenzug
Michigan State University, MI

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Panel – Intermediate

Findings of IGDA's 2002/2003 Online Games Whitepaper

Alex Jarett, Jennifer MacLean, Dave Rohrl, Jeferson Valadares, John Welch
See pages 128-148 for bios
Saturday, March 8 • 9-10am
B2, Convention Center

The IGDA's Online Games Committee will publish and present its updated 2002/2003 whitepaper on online games. A shortened version of the whitepaper will be published in the proceedings and the full version will be available at www.igda.org/online_report.htm. The whitepaper was prepared by over 20 volunteer developers and publishers from across the world. Section Editors of the whitepaper participate in this panel discussion of trends identified in the whitepaper. Markets to be discussed include: web games, console, PC match play/online, and massively multiplayer (hardcore). Topics to be discussed include: market overview, business models, trends in online game design and production, trends in game technology overview, and a review of the activities of the top online publishers.

Takeaway: Attendees come away with better knowledge on the top trends in the market, business models, design, technology, and the activities of the top publishers.

Lecture – Intermediate

Lessons Learned on Dungeon Siege and Other Random Stuff

Chris Taylor *See page 145 for bio*
Friday, March 7 • 9-10am
J2, Convention Center

Chris Taylor provides a look at the last 14 years of his career and talks about everything from working on his first game to starting his own game development company. Chris shares his experiences from when he was the only engineer on the team, to today, where the average development team can have more than 30 people. This change has brought about a massive shift in the way we develop games, from the game's fundamental design to the way the game is ultimately marketed to the public. Chris talks about almost every aspect of the game creation process, including team building, brand management, the developer-publisher relationship, and many other key elements that have a big impact on whether or not a game is ultimately successful in the market. Chris also touches on modern game design philosophies and how important it is to understand your customer, and why the mod community is playing a bigger role than ever in the way we make games today. Lastly, Chris talks about online games, what he sees in the future, and why this frontier is one of the most important areas of game development left for us to explore as we press forward into the decade ahead.

Lecture – Advanced

Mobile Games: Japan and the Future

David Collier *See page 117 for bio*
Thursday, March 6 • 4:30-5:30pm
Almaden Ballroom, Hilton

Most of the money flowing through the mobile games business is in Japanese yen. Japan is a flash forward to a mobile games industry with millions of daily consumers. Come to this presentation to find out what's making Japan's mobile gamers tick, and what this means for the U.S. and European mobile-game markets as they mature this year.

Topics include:

- Screenshots and demos of leading Japanese mobile games
- Which companies are making money
- What are the killer apps?
- New technologies: 3D in phones, GPS and location information, audio engines, messaging, and cameras, and the applications that use them
- How to enter the market and work with Japanese publishers and mobile distributors
- Evolving services: from one-off games to packs
- Technical differences from U.S. and Europe
- Managing and marketing services
- Who's using what applications

Takeaway: Attendees learn how to compete as the mobile game business evolves. Issues including game design, marketing, planning, winning and keeping users, which technologies to bet on, and lessons from the future are explored.

Panel – All

Story Summit

Hal Barwood, Bob Bates, Patricia Pizer, Mike Pondsmith, Lee Sheldon
See pages 114-148 for bios
Thursday, March 6 • 9-10am
J2, Convention Center

The story summit gathers expert designers from different genres to assess the state of storytelling in games. The panelists discuss the common issues facing storytellers in all games, as well as the challenges presented by individual game types. The panelists include designers of traditional single-player games, as well as those working on multiplayer, online, and massively multiplayer games.

Takeaway: Storytelling has spread to virtually every game genre. Attendees learn basic techniques that apply to all genres, as well as adaptations that make it possible to present stories within different game types.

Intended Audience: The panel benefits anyone interested in learning storytelling techniques within games.

Lecture – Intermediate

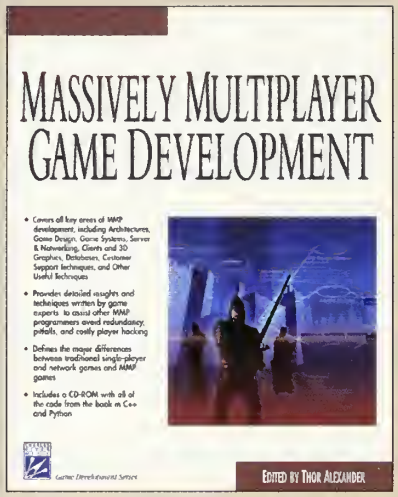
The Technology of Jak & Daxter

Stephen White *See page 147 for bio*
Friday, March 7 • 12-1pm
J1, Convention Center

After developing the highly successful Crash Bandicoot games for the PlayStation, Naughty Dog went on to develop Jak & Daxter: The Precursor Legacy, which has been heralded as having one of the most powerful engines ever created for the PlayStation 2. From the beginning we wanted Jak & Daxter to have one continuous, seamless world with no load times and no obvious level boundaries. We wanted the world to be extraordinarily detailed, yet have grand vistas and wide-open spaces. And we wanted the player to be able to roam relatively freely within the world, avoiding the rail-like restrictions of our previous Crash Bandicoot games. To achieve these seemingly conflicting goals required many creative solutions to extremely difficult problems, and impacted practically all aspects of the game's development. This talk covers an overview of the techniques and approaches that we used to create and render the detailed environments and characters of Jak & Daxter, including various level of detail technologies and data management.

Takeaway: Game hardware is continuing to become increasingly powerful. Ironically, more powerful hardware typically does not simplify game development, but instead demands creative solutions to increasingly complex problems. In developing Jak & Daxter, we were faced with many issues related to constructing and rendering highly dense polygonal levels as one seamlessly integrated world. This talk describes many of these issues and how we chose to solve these tough problems.

OUTSTANDING BOOKS FROM CHARLES RIVER MEDIA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• Provides detailed insights and techniques written by game experts to assist other MMP programmers avoid redundancy, pitfalls, and costly player hacking
• Defines the major differences between traditional single-player and network games and MMP games
• Includes a CD-ROM with all of the code from the book in C++ and Python
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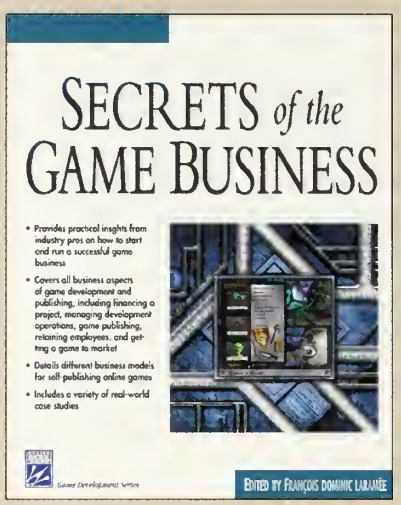
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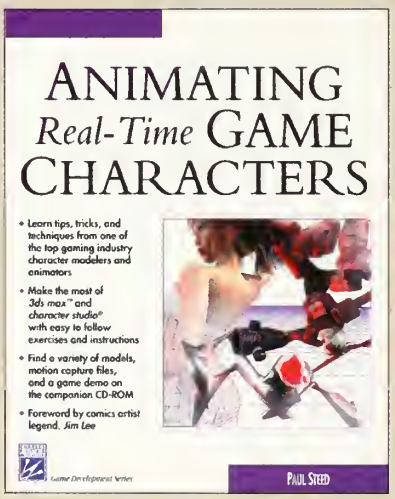
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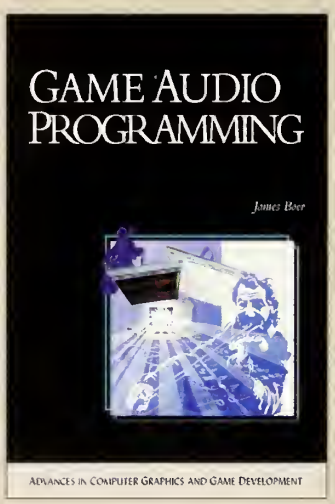

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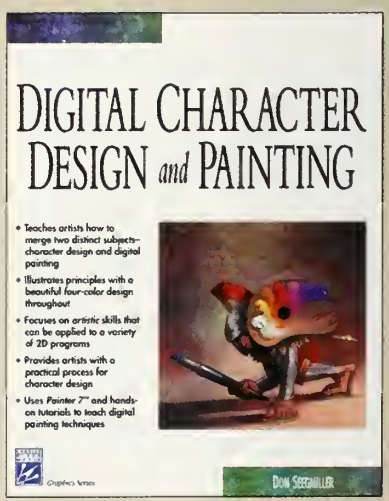
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Over the last four years *MCV* has established itself as the leading weekly trade paper in the European games market covering all sectors of the industry equally, from retail to publishing, development to mobile gaming. It reaches every desk worth reaching within the business, from retail buyers and store managers to managing directors, marketing personnel and software developers. It also reaches the media, financial institutions, and all other parts of the entertainment industry—from music to movies, videos and toys.

Published monthly and BPA-audited, *POST* magazine reaches over 30,500 subscribers working in all forms of entertainment media. Serving the creative, production, and technical managers whose artistry, editing, and technical talents build higher quality productions, *POST* magazine serves a unique creative community and showcases their works of excellence.

RCR Wireless News is the premier news source for the wireless communications industry. Published since 1981, *RCR Wireless News* is the only weekly newspaper reporting on cellular/PCS, data, paging, WLAN and broadband. The newspaper targets top-level wireless executives. *RCR Wireless News* also offers daily news alerts as well as breaking news when it occurs. To register for those services, go to rcrnews.com. *RCR Wireless News* is owned by Crain Communications Inc.

GDC MOBILE

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March 4-5, 2003

Mobile games will change how consumers interact with technology and the time to capitalize on this change is now. Estimates for mobile game revenue vary from optimistic to aggressive, yet major debate remains regarding the adoption of next generation technology, platform standardization, and viable business models. To profit from these changes, two worlds must come together.

Only at GDC Mobile will leaders from the mobile communications industry meet with the world's best game developers. Network operators, content aggregators, technology and infrastructure providers, and leading game developers will share information, explore opportunities, and discover how to deliver compelling mobile entertainment to millions of consumers worldwide.

Day One • Tuesday, March 4th

9:15-10:15AM

World Tour of Mobile Games and Interactive Entertainment

David "DC" Collier, Gamelet.com, Matthew Bellows, Wireless Gaming Review

Mobile games are a global phenomenon, but unless you are a globetrotter, it's impossible to see them all. The GDC brings the best of the world's games to you. Don't miss this exclusive session that provides a whirlwind tour of games developed for mobile subscribers from every region of the world. We'll provide screen grabs and demos of the most successful mobile games on the planet, as well as a glimpse of some of the most innovative new game concepts. This session places special emphasis on identifying the universal principals of mobile game design.

11-11:30AM

Opening Keynote Address

Takeshi Natsuno, Executive VP, NTT DoCoMo i-mode

In just three years, i-Mode, the world's most successful mobile Internet service, has zoomed from zero to 30 million subscribers, a feat that took AOL fifteen years. NTT DoCoMo set the blueprint for the successful deployment of mobile data services, beginning with a subscription business model for content, tight collaboration with makers of mobile phones, and brilliant marketing. Games comprise a key facet of DoCoMo's success story. i-mode continues to pioneer new features at regular intervals, including color screens, Java on mobile devices, mobile communities, and mobile multimedia on their new 3G network. Now the service is expanding to Europe and North America. Attend this session and learn from the experience of Takeshi Natsuno, the architect of the mobile data service that set the industry benchmark.

11:30AM-12:30PM

Regional Case Study: China
Developing Mobile Games in the World's Largest Market

Norbert Chang, Enorbus

Last year, China surpassed the United States as the largest mobile market in the world. Over 165 million Chinese use mobile phones, and the market continues to expand at a rate of 30% annually. Hear the CEO of one of China's leading game publishers describe market dynamics, demographics, and local taste in game play. Learn what it takes to carve a deal with the biggest mobile operator in China.

2-3PM

The Truth Behind Mobile Game Publishing

Matthew Bellows, Wireless Gaming Review, Juan Montes, Motorola, Gin Hyeon, Com2Us, Mitch Lasky, JAMDAT

Game publishers and distributors take a risk with every mobile game they release. This session explores how mobile game backers evaluate a game opportunity and pay for the game to get built. We'll talk about marketing and promotion for mobile games, the importance of branded titles, and publisher strategies for bringing an unknown game to market. Attend this session to learn how publishers select new titles and how they reward the developers of hit product.

3:15-4PM

Who Needs A Publisher? Who Needs an Operator?

Kevin Bradshaw, Machines That Go Ping

What role is played by the middlemen in mobile content? Are distributors avoidable, or are they an inevitable component of the mobile media value chain? Is there sufficient margin in mobile gaming to support a middleman? What exactly is the mobile operator doing to earn a growing percentage of revenue generated by content? A frank look at the pros and cons of dealing with aggregators and distributors, and serious consideration of emerging options which enable developers to circumvent the gatekeepers are discussed.

4-6:30PM

Mobile Operator Spotlight Presentations: Day One

Chip Novick, Sprint PCS (USA), Alan Welsman, Orange (UK), Darcy McNeill, Telus Mobility (Canada), Jerry Rocha, Cingular Wireless (USA)

Each day, the conference concludes with a special session featuring representatives of leading mobile operators who share their plans for mobile game services. Attendees learn the specifics of network deployments, new handset configurations, pricing plans, marketing schemes, developer support programs, and more. This moderated session is intended to provide ample opportunity for audience interaction and a rare chance for dialog between international operators about the role of games in the mobile arena.

Check www.gdcmobile.com for the latest descriptions and updates.

Day Two • Wednesday, March 5th

9-10AM

Keynote Address: Mobile Multimedia and Games

Ilkka Raiskinen, Senior Vice President, Media & Entertainment, Nokia

The mobile terminal is on the verge of an incredible transformation to meet an expanding global opportunity. Over 1 billion mobile phones are in use worldwide, and more than 1 billion SMS text messages are sent a day. Where text goes, rich data follows. The mobile phone has evolved into a media terminal, with color screen, powerful microprocessor, more memory, and more capability. What is the vision for mobile media and entertainment that plays on such devices? Don't miss this keynote address from the top media executive at the world's leading mobile phone company. You'll learn about new developments and device capabilities; what's next for multimedia and multiplayer games; the value chain for all participants in the mobile games industry; and the importance of open standards and collaboration among industry leaders to create a common, open platform.

10:30-11:30AM

Multiplayer Games and Mobile Communities

Dan Scherlis, Etherplay

Mobile phones are designed to connect people, yet most mobile games are designed for solitary play. Can mobile games take advantage of mobile connections or must the mobile phone prove merely a worse Gameboy than Gameboy? This session examines the lessons of wired online games—particularly massively multiplayer online games (MMOGs)—and argues that multiplayer games will also prove the most profitable format for wireless online play. This need not require 3D graphics, or any graphics at all. Specific examples are used to explore the applicability of specific elements of MMOGs, including social interaction, persistence and player investment, and breadth of community.

11-11:30AM

Regional Case Study: Finland
Cross Media Marketing of Mobile Games: Integration with TV, Web and Other Digital Media

Antti Seppanen, Intervisio

Television has emerged as the most powerful tool for marketing mobile games. Finland is a laboratory for new mobile services. In this case study, learn how Finnish media and game companies have cooperated to create new revenue with cross media marketing. How does text messaging enable interaction with TV and other linear media? How are mobile games integrated into a TV show? How are console and PC games extended in the mobile world? Learn about the new, flexible format of cross-media game design from an acclaimed Finnish journalist.

11:30AM-12:30PM

Where in the World is LBS? Designing Games Using Geo-Location

Moderator: Robert Tercek, Machines That Go Ping
John Bunyan, AT&T Wireless, Sven Hålling, It's Alive

Location technology erases the boundary between the virtual and the real. LBS allows game developers to incorporate elements from the real physical world into mobile game levels. LBS promises to change a fundamental aspect of the computer game experience: instead of manipulating characters onscreen, the player must move through real cities and parks to encounter and engage with other participants in the game. In this moderated discussion, two pioneering executives review lessons from the early deployments of LBS technology: John Bunyan, SVP of AT&T Wireless Multimedia Services, reviews the experience of the Find Friends deployment, and Sven Hålling, CEO of It's Alive, discusses early deployments of Botfighters, a virtual paintball game, and a LBS dating game in Europe. This session covers LBS game design, human interaction design, user interface and the evolution of network-assisted direction prediction & location detection.

2-3PM

Game Design for the Mobile Medium

David "DC" Collier, Gamelet.com, Glenn Broadway, IOMO, Zachary Norman, JAMDAT, Donald Wisniewski, Cybiko,

Veteran mobile game designers discuss this new medium and share their frontline experiences. What makes mobile games addictive? How are mobile gamers different? Why is a phone not a Gameboy? What is the role of branded titles versus original titles? Learn about the full palette of mobile game design techniques, from messaging to multiplayer in the wireless world. Designers give examples of mobile games that have hooked them in. This moderated discussion of distinguished international game developers identifies the emerging principles of mobile game design.

3:15-3:45PM

Regional Case Study: USA
Development in a Fragmented Landscape

Dale Crowley, Nuvo Studios

In just three months, the US has been transformed from a wireless backwater to a showcase for new mobile technologies. In late 2002, color handsets, camera phones, GSM/GPRS, CDMA 1X, Java and Brew were swiftly deployed. The US presents an exciting, but daunting, opportunity for mobile game developers. The potential market is huge, but terminal device fragmentation and network incompatibilities pose significant hurdles to game development. In this session, the CEO of one of America's leading mobile game studios describes the cross-platform development strategies and game designs which transcend a splintered market.

4-5PM

Beyond Downloadable Games: How New Technologies Will Drive New Forms of Interaction

Paul Neurath, Floodgate Entertainment, Thomas Reardon, Openwave Systems, Dan Scherlis, Etherplay, Chris Wright, Digital Bridges Ltd.

The next few years will be more challenging for mobile game developers. New technologies include networking methods (P2P, Bluetooth), new modes (VoiceXML, MMS), more cross-platform integration, and new abilities (location, 3D). Handheld game consoles, telephones, and PDAs are learning tricks from each other, and from other appliances. What new forms of gameplay do these changes enable? How will these technologies help developers transform the human/machine interface—or the human/human relationship? As devices become more ubiquitous and personal, and as they exploit the mobile network, how will game communities and social games evolve? This session examines specific examples of emerging and potential technologies, and explores potential scenarios for game structures and gameplay experiences.

5-6:30PM

Mobile Operator Spotlight Presentations: Day Two

Mica Imamura, J-Phone (Japan), Paul Palmieri, Verizon Wireless (USA), Tim Raby, O2 (UK), Michael Gallelli, T-Mobile (USA), Mike McSherry, Boost Mobile (USA)

Mobile operators tell all during a continuation of the previous day's roundup panel. This moderated discussion contrasts consumer demand and game development in Japan, UK and US, with emphasis on success stories and real performance metrics. Representatives from leading mobile operators reveal their plans for mobile game services. Each carrier shares information about their respective network and the dynamics of their regional market. Audience interaction is encouraged.

mobile development sessions at GDC

Roundtable – All

Could Retro Arcade Classics Kill Wireless Gaming?

Glenn Broadway
See page 116 for bio
Thursday, March 6 • 3-4pm
D, Convention Center
Friday, March 7 • 9-10am
Pacific, Hilton
Saturday, March 8 • 2:30-3:30pm
Santa Clara II, Hilton

The wireless device as a gaming platform presents developers with limitations and constraints akin to those found in early 8-bit computers and consoles. It's easy to understand why designers are drawn back to that era when presented with the challenge of creating content for the medium. But were the classic games of the eighties really the pinnacle of what could be achieved? And more importantly, are they the kinds of games we should be bringing to the wireless arena? One thing is certain, ported verbatim they will all fail to harness the singularly outstanding feature of the medium, ubiquitous connectivity.

You look at Asteroids through rose tinted spectacles, reminded of halcyon days in seafront arcades. A fifteen year old with a $300 Nokia sees stick man boulders and a triangle spaceship . . .

Takeaway: This session broadens your view of what the wireless gaming platform is capable of. Many developers look at the medium from a purely technical viewpoint, taking little notice of the importance of player's social habits or ubiquitous connectivity.

Prerequisite: No particular prerequisite knowledge or expertise is required from attendees. Wireless gaming brings this issue to the fore, but it is a point that all developers should consider carefully.

Lecture – All

Developing Wireless Games: From Idea to the Marketplace

Oliver Miao
See page 136 for bio
Friday, March 7 • 3-4pm
A2, Convention Center

Wireless games are at the cusp of grabbing the attention of cell phone users around the world as carriers, manufacturers, publishers, and developers all work to bring games into the marketplace. As the rollouts of games begin, it is important for companies to understand the wireless games market and the risks and rewards involved in entering this market. This presentation gives an overview of the market, the target audience, the technology, and the business models behind wireless gaming.

Along with market overviews, the talk also provides specifics on the available code platforms, the specific handsets released by manufacturers, the North American carriers building the market, and a listing of the most successful games on the market. Further discussion is given to future market events which may influence the direction of wireless gaming.

Takeaway: This presentation gives an overview of the risks and rewards of developing wireless games. Developers learn the steps involved from the conception of a game idea to the actual release of a wireless game into the marketplace. Concrete information on the players and technologies in the marketplace gives developers a strong foundation for making informed decisions about entering the wireless games market.

Prerequisite: This lecture is intended for those interested in exploring the wireless games market. Developers and publishers get key information for making decisions about entering this emerging market.

Lecture – Intermediate

Doing Business with the Telecom Industry: Understanding their Deal Terms, Culture, Rites & Rituals

Dan Scherlis
See page 142 for bio
Saturday, March 8 • 12-1pm
Almaden Ballroom, Hilton

The telecom industry is discovering entertainment software. Mobile network operators seek wireless games. Cable operators want games for interactive television. Internet Service Providers (ISPs) and portal companies are entering those spaces, as well as building their web-based game portfolios.

The problem is, telecommunications people are different from game developers and publishers. Their business meetings, presentations, and cultural norms make for communication problems. And they have different expectations for deal structures and deal terms alike.

This lecture examines the differences in each of these areas, and presents a field guide to telecom, with emphasis on practical advice for productive communications and negotiations, and successful deal-making. Specific suggestions are presented for sales presentations, for proposals and negotiations, and for resolving the two industries' conflicting expectations for content-deal structures.

The session emphasizes real-world examples drawing on work creating content deals for telecommunications-giant Comverse and working with European mobile network operators. The lecture also contrasts experiences at AT&T and HBO with work as a game-industry CEO.

Takeaway: Participants gain an understanding of the telecom executive's point of view and are better prepared to get the deal and manage its delivery. They learn to interact more successfully from sales pitch to contract execution. They are aware of the different business pressures, decision-making processes, and company cultures, and how those factors drive deal-making behavior and expectations.

Prerequisite: For game producers and executives who do business with, or seek business with, telecom people, including publishers/developers of wireless or iTV games. Basic awareness of game-deal terms is helpful.

mobile development sessions at GDC

Panel – All

How to Take Your Mobile Game to Market

Matthew Bellows, John Chasey, Oliver Miao, Itsuro Yoshimoto
See pages 114-148 for bios
Friday, March 7 • 4:30-5:30pm
B1, Convention Center

Multiple paths to revenue exist today for mobile games developers; however, these routes are ill-defined and difficult to navigate for newcomers. Despite this, operators, content publishers, and independent application distributors are buying applications and devices are hitting the market in volumes now. This panel brings together three developers, each of whom has successfully pursued a different path to revenue. These developers will discuss lessons learned, present practical advice, and discuss their experiences.

Takeaway: Developers understand how to bring a mobile game to the market through the top three channels. Developers leave the panel with a clear idea of the key routes to revenue, timelines and resource considerations for each timeline, and where to start.

Prerequisite: Developers creating or considering creating mobile games that want to take their game to market successfully.

Lecture – Advanced

Mobile Games: Japan and the Future

David Collier
See page 117 for bio
Thursday, March 6 • 4:30-5:30pm
Almaden Ballroom, Hilton

Most of the money flowing through the mobile games business is in Japanese yen. Japan is a flash forward to a mobile games industry with millions of daily consumers. Come to this presentation to find out what's making Japan's mobile gamers tick, and what this means for the US and Europe mobile games markets as they mature this year.

Topics include:

- Screenshots and demos of leading Japanese mobile games
- Which companies are making money
- What are the killer apps?
- New technologies: 3D in phones, GPS + location info, audio engines, cameras
- How to enter the market and work with Japanese publishers and mobile distributors
- Evolving services: from one-off games to packs
- Apps that use special phone features: location, messaging, cameras
- Technical differences from US and Europe
- Managing and marketing services
- Who's using what apps

Takeaway: Learn how to compete as the mobile games business evolves. Explore issues including game design, marketing, planning, winning and keeping users, which technologies to bet on, and lessons from the future.

Panel – All

Three Great Mobile Games

Matthew Bellows, Jim Blackhurst, John Newcomber, Matt Yaney
See pages 114-148 for bios
Friday, March 7 • 12-1pm
B2, Convention Center

This panel discussion presents three of the coolest new mobile phone games. The session demos each game and discusses what makes it engaging, creative and appropriate for the medium. The designers of each game then talk about their development choices, what they learned, and what they'd do differently next time.

Takeaway: The audience gains insight from four mobile game experts about the current state of the art, the capabilities of the medium, and the challenges of creating a game for mobile phones.

Prerequisite: Curiosity about really small games.

tutorials

TWO DAY TUTORIALS
TUESDAY, MARCH 4 & WEDNESDAY, MARCH 5

150
IGDA Academic Summit

Espen Aarseth, Ernest W. Adams, Doug Church, Jason Della Rocca, Rob Huebner, Robin Hunicke, Gerard Jones, Brenda Laurel, Frans Mayra, Ken Perlin, Warren Spector, Eric Zimmerman
See pages 114-148 for bios
10am-6pm • A3, Convention Center

While industry and academia are more involved with each other than in the past, we believe there is room to improve communication and actively work together. The academic environment supports analysis and examination of the medium in a way that the purely commercial game development industry has trouble with, providing space for formal and conceptual experimentation that is hard to justify in the market-driven world of shipping titles. What's more, ties with academia can help foster the growth and development of the industry by ensuring that graduates come to the job market with a solid knowledge base.

For the second year, the Education Committee of the International Game Developers Association will host a two-day "summit" to bring together members of the academic and game development communities. This year's Summit will emphasize group interaction and discussion, as we explore ideas and aspirations for industry/academic relations, as well as implementation strategies to get us there. Around these themes of "Ideas" and "Implementation", discussion will focus on the following three axes:

- Theoretical research and the study of games
- Curriculum and instruction
- Commercial applications of research

Intended Audience: Academics and developers interested in building stronger relations with each other are encouraged to attend. From the academic world, specifically, researchers, professors, department heads, faculty directors and other academic decisions makers. From industry, developers and managers who want to collaborate with academia on research projects, build stronger relationships and help guide curriculum development.

The Academic Summit is sponsored in part by The Academy of Art college.

151
Game Design Workshop

Rob Fermier, Austin Grossman, Robin Hunicke, Marc LeBlanc, Frank Lantz, Katie Salen, Tim Stellmach
See pages 114-148 for bios
10am-6pm • C1, Convention Center

This intensive two-day workshop explores the concept of tuning in game design. Through hands-on activities, group discussion, analysis and critique, attendees immerse themselves in the iterative process of refining a game design and discover formal abstract design tools that help them think more clearly about their designs and make better games.

Game design is an iterative process. In any medium, the final quality of a game depends on many cycles of experimentation, analysis, and revision, also known as tuning. This tuning process is the focus of the workshop. It presents a formal approach to game design, in which games are viewed as systems and analyzed using formal models.

Before we can even begin to design a game, we need to understand our aesthetic goals. In other words, we need to enumerate all the kinds of "fun" that we hope the game provides its users. We can formalize our understanding of our game's aesthetic goals by formulating an aesthetic model for each goal, a formal description of the goal that identifies its criteria for success, and possible modes of failure. The workshop presents a handful of aesthetic models as examples, and also encourages attendees to formulate their own. Attendees use game design exercises to practice using aesthetic models as a yardstick to measure their progress through the tuning process.

Working in small groups, attendees are given specific games to play and will analyze them in terms of aesthetic goals and models. Several different games are explored and common game design themes are identified as different groups share their results. For each game that they analyze, attendees will be presented with a concrete design exercise to undertake. An exercise might involve adding a new feature, accommodating a new goal or requirement, or fixing a design flaw. These exercises challenge attendees to analyze and identify the design principles at work in a game, and to think flexibly and creatively while working within design constraints. In addition, these exercises serve as a starting point for discussing how the tuning process applies to games in digital and non-digital media.

In addition to these analysis-and-revision exercises, attendees gain further practical experience working with these models through brief collaborative design projects, brainstorming sessions, critical analysis, and discussion.

Takeaway: Game designers and programmers leave this workshop with new abstract tools for analyzing and improving their own game designs, a deeper understanding of iterative design, and other lessons that emerge from the small group discussions with their peers.

tutorials

ONE DAY TUTORIALS
TUESDAY, MARCH 4

101
Digital Painting and Sketching

Donald Seegmiller
See page 143 for bio
10am-6pm • A1, Convention Center

This tutorial discusses and demonstrates the techniques used when designing and digitally painting a character. This information should be useful to anyone that has to develop character designs and then present their ideas in the form of something more than a pencil sketch, along with those who just wish to be able to create digital works of art.

Takeaway: Attendees learn traditional artistic principles and how they integrate with the digital world.

Intended Audience: This tutorial is intended for beginning and intermediate artists who wish to learn more about integrating traditional art concepts with digital media.

102
Effective Project Management

Randy Angle & William Dwyer
See pages 114, 120 for bios
10am-6pm • J1, Convention Center

What happens when an architect and an engineer tackle project management? Using the principles of good product development learned through experience gained prior to joining the game industry, and the lessons learned by surviving disasters after, learn a new and successful style of project management. This one-day tutorial expands on the content in last year's Effective Project Management tutorial and provides both lessons in step by step planning tactics as well as hands-on project management activities.

103
Built to Move in Max 5

Paul Steed
See page 144 for bio
10am-6pm • A8, Convention Center

Is your real-time game character built to move? Does its mesh accommodate deformation properly so when it shoots, runs, dies and shakes its booty it looks the way you want it to? What about your rig? Your weighting? Answer these questions and more when you attend this all-day tutorial brought to you by one of the most recognized character modelers/animators in game development today. Learn how to design, model, texture, rig, and weight your real-time, polygonal characters so they can achieve optimal animations. See the techniques, tips, and tricks taught to you put to test as example characters from games and real-time applications are demonstrated in action. If you want to get the most effective game characters and animations out of 3DS Max 5 and Character Studio 3, this tutorial is for you. Don't miss an opportunity to spend a day learning, sharing, and communicating the ins and outs of optimal real-time character creation.

Takeaway: Attendees leave feeling confident they can create solid, attractive, and effective real-time characters. An in-depth workbook covers all information presented in the tutorial. Character design, modeling, texturing, rigging, and weighting in Max 5 and Character Studio 3 are no longer a mystery. Even advanced users of the tools covered learn a thing or too as they watch a peer reveal how he does it.

Intended Audience/Prerequisite: This tutorial targets anyone interested in creating effective real-time game characters. A basic to intermediate knowledge of 3DS Max 5 and Character Studio 3 is required.

104
Advanced Visual Effects with Direct3D

Cem Cebenoyan, Sim Dietrich, Simon Green, Richard Huddy, Greg James, Jason Mitchell, Ashu Rege, Guennadi Riguer, John Spitzer, Alex Vlachos, Matthias Wloka
See pages 114-148 for bios
10am-6pm • J2, Convention Center

Brought to you with the collaboration of the industry's leading hardware vendors this daylong tutorial provides an advanced look at the Direct3D technologies in DirectX 9. After a detailed introduction to the new features and shader models, a variety of special effects that illustrate their use in game content are discussed and demonstrated. This includes detailed presentations from the hardware demo teams who get the chips first and are responsible for developing technical demo content that shows off the visual effects newly enabled by the current generation of DirectX 9 graphics hardware. In addition to illustrating the details of rendering advanced real-time visual effects, this tutorial covers a series of vendor-neutral optimizations that developers need to keep in mind when architecting their next-generation engines and shaders.

105
Faster Math Functions

Robin Green
See page 124 for bio
10am-6pm • B1, Convention Center

We use math functions like acos() and tan() all the time, but how efficiently are they implemented? How can we trade off accuracy for speed? This tutorial explains how to implement the transcendental functions on efficiently modern videogame hardware and the trade-offs you can make. We cover common floating point "gotchas," range reduction, polynomial approximation, table- and semi-table-based techniques, and ways to leverage SIMD. Other topics addressed include: When can software outperform dedicated hardware? What is the smallest possible sine table? Also covered are the fastest way to generate sine and cosine at the same time and how to abuse floating point values without involving integer registers.

Takeaway: Attendees leave with a toolbox of techniques for rolling their own function optimized for speed. These include: code samples and the proofs that lie behind them, the world's fastest sine and cosine generator, new uses for Mathematica and Maple in game design, and tricks of the math masters.

Intended Audience: This tutorial suits library coders, console hackers, handheld jockeys, and math junkies on all platforms who are looking for hardcore information and that 10 percent edge over the competition.

106
Dynamic Visualization: Tools and Process

Paul Schuytema
See page 143 for bio
10am-6pm • B2, Convention Center

There are many facets to designing a complete game and each requires a unique creative brainstorm. This tutorial takes on the exciting task of design visualization by attacking it on two fronts: growing our "creative intelligence" and then applying that unique intelligence to the process of game design.

The first part of the tutorial focuses on getting to know our own creative intelligence and the various triggers and tools we can use to nurture and grow our creative minds in the context of game development work. We then work through a series of exercises to stretch our creativity. This section of the workshop culminates in a discussion of perception, visualization, and

deconstruction: how to visualize in a directed fashion and then deconstruct and evaluate those visualizations and perceptions and present them in a useful form to share with the rest of your development team.

The second part of the tutorial focuses on using a series of visualization exercises and tools to brainstorm and explore the various key aspects of game design. We first work on rule set visualization and break out in teams to design and play-test a board game. We then turn our attention to interactive gaming and work on visualizing core rule sets, story/context, and feedback loops for an interactive game.

The tutorial wraps up with a highly energized game design "jam." First, we work through the exercises rapidly as a group, then the attendees break into small design cabals and are given the tools they must use to create their own solutions to the exercises. Teams then share their work and discoveries with the whole class.

Takeaway: In addition to learning some visualization tools useful for both individuals and for development teams, attendees are presented with a large and useful packet of exercises, scream sheets, and reference materials.

Intended Audience: Game designers, producers, and developers interested in creative visualization as it applies to game design benefit most from this tutorial.

107
All Stories Great and Small

Lee Sheldon
See page 143 for bio
10am-6pm • A7, Convention Center

This tutorial examines three types of storytelling in games in all their various forms. We lay the groundwork for interactive storytelling by examining time-tested techniques in literature, drama, and film that can also be applied to games. But that is only the beginning. We give participants the tools they need to design nonlinear game stories as emotionally involving as their linear ancestors. We also explore the techniques for crafting environments for emergent storytelling and player-generated content in massively multiplayer online games.

Our thesis is that while leaving the storytelling exclusively to an authorial voice in solo games can be desirable, it denies the social aspects of multiplayer. Yet we show that despite the popular theory that relying solely on player-generated content for MMP storytelling is all designers need do, developer-generated stories can coexist side by side with player-generated content to create living worlds of stories that satisfy and endure. Aiding us are some of the top game designers in the industry who share their techniques and experiences in designing games where the story is every bit as compelling and meaningful as the gameplay.

Takeaway: Participants learn how to create stories in games that enhance gameplay instead of fight against it, and how to plant the seeds for emergent storytelling so that players may tell their stories too.

108
Running Massively Multiplayer Games

Raph Koster, Rich Vogel, Gordon Walton
See pages 114-148 for bios
10am-6pm • J3, Convention Center

With the tremendous success of massively multiplayer games such as EverQuest, Ultima Online, and Dark Age of Camelot, and the arrival of new games such as The Sims Online and Star Wars Galaxies, many developers and publishers are jumping headlong into the development of massively multiplayer experiences. Hard as it is to develop such a title, it's only half the battle. Once the game is launched, it faces a host of other concerns that challenge traditional design, development, and production paradigms. This tutorial covers the challenges of running the service side of the massive multiplayer equation, focusing primarily on design, production, and service issues.

Takeaway: Participants gain an understanding of the differences between live services and development projects, customer service patterns and paradigms; and development process models for updating games after they are live.

109
Xbox Open for Unsigned Developers (Sponsored Tutorial)

Laura Fryer, John Harding, Dave McCoy, Brad Pollard, Chris Prince, Scott Selfon
See pages 114-148 for bios
10am-6pm • A4, Convention Center

The Xbox platform is one like no other. If you want to create on a cutting edge, powerful platform, then attend this session. Unsigned developers learn how to utilize the power of the Xbox and create games that exceed the boundaries of imagination with tools that are the best and most comprehensive in the industry. Join the Xbox Advanced Technology Group for this day of tutorials on many exciting Xbox topics including: becoming an Xbox developer, Xbox LIVE!, graphic upgrades and treats, and audio on Xbox. We hope to see you there.

Intended Audience: Unsigned developers who are interested in developing Xbox games.

110
Programming Games with Shockwave and Flash

Gary Rosenzweig
See page 141 for bio
10am-6pm • F1, Convention Center

This tutorial explores how to use two different tools to create game content for the web. Flash MX is now a powerful game development engine that can make content playable for almost all web surfers. Shockwave now includes a powerful 3D engine that enables developers to build high-quality games for a mass audience. Participants see numerous examples and get a good overview of what is possible with Flash and Shockwave. Code is shown and shared.

Takeaway: Attendees learn what Flash MX and Shockwave do, what their differences are, and when to use one or the other. They learn the limits of the technology and see examples. They understand the basics of what it takes to make games with the tools.

tutorials

Intended Audience/Prerequisite: Participants should be interested in developing games for the web. Those who have used Flash or Shockwave already are able to pick up new techniques.

111
Java Game Programming

Dustin Clingman & Shawn Kendall
See Addendum for bios
10am-6pm • A2, Convention Center

Java as a development language is steadily growing in popularity and the list of production games is growing. With the next generation of handhelds and consoles bringing even more media and networking capabilities, Java is positioned to explode within game production.

The tutorial examines in detail current game programming issues specific to Java and Java APIs.

Specific topics include but are not limited to: strengths and weaknesses of Java for games programming, working in harmony with the JVM Garbage Collector, performance-oriented programming in Java, Java APIs, Java3D, Java Media Foundation, the upcoming Java Gaming Profile, and Java for game tools. In addition to standard Java APIs, industry created Java middleware will also be examined.

Takeaway: Attendees gain a clear view of Java's possibilities and future in creating games. They understand the how-tos and with-whats of the currently available gaming-related Java tools and APIs.

Intended Audience/Prerequisite: Experienced programmers using Java or looking to use Java for game programming benefit from this tutorial.

ONE DAY TUTORIALS
WEDNESDAY, MARCH 5

201
Developing a Play-Balancing Plan

Prodipto Roy
See page 142 for bio
10am-6pm • A7, Convention Center

Play-balancing is typically approached free-form, with a rather hazy goal of being "balanced" by a particular date. With a play-balancing plan, one can identify each aspect of the game that requires scrutiny and can break the process down into several manageable milestones. Additionally, one can get a solid idea of what sort of staffing is required in order to analyze a game for play-balancing.

Takeaway: Attendees learn how to identify the components of a game that will need to be balanced. They create a hierarchy of balancing dependencies. Once all components are identified, they formulate a balancing strategy for each one. Finally, they write a staffing plan forecasting the staff-hours required to complete the balancing process.

Intended Audience/Prerequisite: This tutorial is designed for designers or testers who are responsible for play-balancing a game.

202
Making Characters Move: Expressive Character Acting Through Laban Movement Analysis

Leslie Biskho & Jana Wilcoxen
See pages 115, 148 for bios
10am-6pm • B1, Convention Center

How does movement convey emotion and expression? How can characters' movements say even more about them than their clothes, hair color, and other visual features? What is it about the expressive qualities of human movement that enable us to recognize our friend's walk when only shown a pattern of dots moving on a screen?

Laban Movement Analysis (LMA) provides a rich framework for observing, describing, and interpreting human movement. This tutorial engages participants in LMA-based movement activities that provide animators, art directors, motion capture directors, game designers, and level designers with a new way of making expressive choices for their animated characters. The presenters relate LMA to the production process, from character development to animation, using examples from game genres such as action-adventure and sports. All members of a production team who work with animated characters, whether through keyframe, mocap, or both, can benefit from developing a richer movement-related vocabulary.

Successful games create empathetic experiences that break the barrier between the on-screen character and the player. As game developers, we give players opportunities to behave like and virtually embody fantastical or superhuman characters and archetypes. Yet we seldom consider how a well-phrased gesture or suitably placed movement can affect the player's experience, or worse, how the lack of one can distract from the experience and destroy the immersive worlds we so earnestly forge.

Game developers and animators need to understand the subtle aspects of human behavior. If movement conveys the essence of behavior, studying movement is a requirement to understanding behavior and provides unique tools for game making. Now that next-generation games are here, we must consider the demands for believable, realistic, and expressive movement that new technologies make possible.

Takeaway: Through active movement participation, attendees learn the basics of Laban Movement Analysis and how to apply LMA to the production process. Attendees broaden their range of expressive options to enliven their game characters and gain an effective vocabulary to describe movement.

Intended Audience: This tutorial is intended for animators, mocap directors, art directors, and game and level designers who work with movement of the human figure and have a strong interest in pushing the expressiveness of their characters further.

203
Strategic Planning for Game Developers

Tobi Saulnier
See page 142 for bio
10am-6pm • A1, Convention Center

Need a team strategy? Need to get everyone moving in the same direction? This one-day tutorial leads you through a series of tools and analysis to develop a vision and strategy for your organization, whether a small company or a division of a larger one. This tutorial is most useful if attended by more than one person from your team, but the tutorial combines attendees into teams if needed so they can learn the tools well enough to take back with them. This workshop is packed full of well-established, immediately useful, and simple-to-apply tools.

Takeaway: Attendees learn a set of market analysis tools, the threat-opportunity matrix, SWOT analysis (strengths and weaknesses), customer needs analysis, roadmapping, selecting business metrics and objectives, visioning exercises, and selection of strategic goals.

Intended Audience: The intended audience is anyone who leads a team or organization and wants to develop a clearer vision to work towards, and strategy for getting there.

tutorials

204
Creating Complex Character Rigs in Maya for Games

David Stripinis
See page 145 for bio
10am-6pm • A8, Convention Center

In days of old, not much thought was given to creating animation hierarchies for game characters. But just as artists have been given larger texture sheets and more polygons to create with, so too have they been given the ability to use more complex skeletal setups. In this all-day tutorial, we explore not only the basic process of creating a good character rig, but also how character design, modeling, and the pipeline all play a role in the evolution of a rig. Special emphasis is placed on not just creating a rig that works well for an animator, but one that works well in a game environment as well.

Topics to be covered include: Creating a setup for facial animation with bones, adding programmer control to a skeleton, muscle flexion, using Set Driven Keys and expressions for deformation, skeleton optimization and creating custom character user interfaces, and optimizing your pipeline to deal with character-specific issues.

Intended Audience: Attendees should have at least a basic understanding of operating in Maya, as well as a familiarity with the basic technical requirements of today's game characters.

205
Advanced OpenGL Game Programming

Cass Everitt, Simon Green, Evan Hart, Bill Licea-Kane, John Spitzer
See pages 114-148 for bios
10am-6pm • J3, Convention Center

Brought to you with the collaboration of the industry's leading hardware vendors, this daylong tutorial provides an advanced look at the latest technologies in OpenGL. Highly programmable GPUs are moving rapidly into mainstream use, and they fundamentally change the nature of 3D programming. It is no longer sufficient simply to render textured polygons. Quality shading requires a firm grasp of the advanced features available on today's hardware. This tutorial covers many advanced rendering topics in detail, starting with the mathematical principles behind them. Then the corresponding OpenGL interfaces are presented, followed by suggested applications for next-generation games. Finally, demos are shown to illustrate the concepts. The techniques presented not only increase realism in games but also increase performance by offloading many operations onto the GPU that were previously performed on the CPU.

Takeaway: This course covers the advanced features of today's GPUs and guides the attendees though the necessary OpenGL API details and applied techniques, allowing them to add advanced real-time effects to their own projects, whether that be directly within a game, in an artist's tool, or as a plug-in for a digital content creation (DCC) package. Attendees gain a better understanding of how to develop complex procedural shading algorithms of their own.

Intended Audience: Any OpenGL programmer working on a next-generation 3D game or engine benefits from attending this tutorial. Since more and more of these features are exposed in the latest DCC packages, this course is essential for tools and plug-in writers and those creating cutting-edge effects and content for next-generation games.

206
Essential Mathematics for Games Programmers

Lars Bishop & Jim Van Verth
See pages 115, 146 for bios
10am-6pm • A2, Convention Center

Anyone who has visited his or her local mall lately should know that the majority of today's games there are done in 3D. Programming for these games requires a higher level of math background, not only to do graphics but also for such "new growth" areas as simulation and AI. This tutorial provides a toolbox of techniques for programmers interested in improving their 3D background, with references and links for those looking for more information. The focus of the course is to build a simple sub game and show how problems along the way can be solved using 3D mathematical concepts. Topics include affine transformations and model manipulation, introduction to scene graphs, camera tracking, projective transformations, curves and interpolation, quaternions, collision detection and picking, basic simulation and collision response. Sample code libraries and examples are provided.

Takeaway: After taking this tutorial, the student should have a core background in the mathematics necessary for graphics and simulation, so that he can constructively contribute towards development of a game in a 3D environment.

Intended Audience/Prerequisite: This tutorial is primarily for those who wish to improve their math abilities or fill some holes in their background. Freshman calculus and an understanding of vectors and matrices is expected.

207
Making and Managing the AAA Game Development Deal

Jim Charne, Mike Kulas, Dan O'Connell Offner, Frank Pape, Ted Price, David S. Rosenbaum
See pages 114-148 for bios
10am-6pm • J2, Convention Center

Every developer seeks to advance to AAA status and make the richer developer deals that spring from that reputation. The panel examines the current state of software development deals from a legal perspective, covering key contracting issues that are part of every deal, and giving their own perspectives on how to make the deal that serves the best long-term interests of both sides. Special attention is paid to those issues and deal points that set AAA deals apart from the rest. The panel offers comments on what it takes for developers to advance to AAA status, how it affects a negotiation, and how the expectations of both developers and publishers are raised in a AAA deal. Audience questions on all aspects of developer contracts and negotiations are answered, and the day closes with a mock negotiation of a deal between a AAA developer and a well-known publisher.

Takeaway: By learning more about development deals and the current state of game contracting, audience members are better able to represent their own companies in closing the deals that can help their company grow to the next level.

Intended Audience: Development studio personnel, publisher business staff, lawyers, students enrolled in business school, and anyone else who has responsibility for negotiating legal and business terms of software development contracts.

208
The Art and Science of Brainstorming

Noah Falstein, Ron Gilbert, Dave Grossman, Tim Schafer
See pages 114-148 for bios
10am-6pm • B2, Convention Center

Brainstorming is a key tool for the creation of games, but it is often done without conscious application of good technique. Where methods from popular how-to books are applied, they often do not take into account the specific challenges and quirks of the interactive entertainment industry and can in fact perpetuate ineffective or even counterproductive preconceptions.

This workshop covers both basic and advanced brainstorming techniques as applied to the game industry. It features a combination of guided, participatory brainstorming sessions, lectures and demonstrations of good techniques, and as a special highlight, a "guest brainstorm" featuring Ron Gilbert and Dave Grossman, designers who were instrumental in the creation of such classic LucasArts games as The Secret of Monkey Island 1 and 2, and Day of the Tentacle, as well as many other fine LucasArts and Humongous Entertainment games. This inside look at a brainstorming session also includes parenthetical discussion by the participants on the art and science of brainstorm.

Also covered are Noah's experience in many collaborative brainstorming sessions on other games, including Williams Electronics' Sinistar, LucasArts' WWII flight simulator series and Indiana Jones adventure games, and The Dig, as well as lessons learned from brainstorming with both George Lucas and Steven Spielberg.

Takeaway: Attendees learn and practice both basic and advanced brainstorming techniques. We cover many useful aspects of brainstorming, including avoidance of common traps and pitfalls, solo and collaborative techniques, working within licensed properties, and brainstorming with nongamers. Brainstorming novices learn how it is done, and experts have a chance to hone their skills.

209
Level of Detail Management for 3D Games

Jon Cohen, Rob Huebner, David Luebke, Martin Reddy, Amitabh Varshney, Ben Watson
See pages 114-148 for bios
10am-6pm • J1, Convention Center

Level-of-detail (LOD) techniques have become a crucial tool for game developers to manage complexity for interactive 3D graphics. This course addresses important topics in LOD for games, including frameworks for geometric LOD (discrete, continuous, and view-dependent), algorithms and error metrics for generating high-quality LOD models, semiautomatic (artist-assisted) LOD generation, variable-precision rendering, allocating detail to balance visual quality with performance, and run-time terrain simplification. The tutorial also touches on the underlying theory of level-of-detail techniques, such as the basics of visual perception and temporal detail, to help developers creating their own algorithms. Finally, the course addresses nongeometric LOD techniques common to the gaming environment, such as imposters, shader LOD, and shadow LOD. The course presenters are LOD experts from academic research and industry. They have presented courses on the topic for several years at SIGGRAPH and have just released the book *Level of Detail for 3D Graphics* published by Morgan Kaufmann. In this tutorial they distill the essential aspects of LOD for game development from their book and previous courses and add several new topics of particular relevance to game developers.

Takeaway: Attendees gain in-depth knowledge about level-of-detail (LOD) techniques, a crucial tool for managing complexity in modern 3D games. The course covers both state-of-the-art techniques from the frontiers of LOD research and bread-and-butter methods essential to game development. Important topics include algorithms, both automatic and artist-assisted, for generating LODs; techniques for managing detail to achieve real-time performance; view-dependent simplification; terrain rendering; and game-specific nongeometric techniques.

Intended Audience: This course targets attendees familiar with programming 3D graphics, such as game engine developers, who wish to become sophisticated LOD users.

210
DirectMusic

Scott Selfon
See page 143 for bio
10am-6pm • F1, Convention Center

In this tutorial, we briefly review the basics of DirectMusic, an engine that can be used to create non-repetitive, dynamic, and interactive scores, before moving into more advanced authoring and implementation topics.

Areas covered include: Nonlinear game audio authoring techniques, DirectMusic Producer tips and tricks, basic and intermediate variability, DirectX Audio Scripting for the noncoder, and using chords and chordmaps to expand your musical palette.

The tutorial also features demonstrations from actual DirectMusic titles, as well as a chance to converse with composers, sound designers, and developers who have used the technology.

211
Microsoft DirectX Developer Day (Sponsored Tutorial)

Microsoft DIRECTX

Michael Anderson, Dave Bartolomeo, Chas Boyd, Gershon Parent, Craig Peeper, Andy Pennell, Peter-Pike Sloan
See pages 114-148 for bios
10am-6pm • A4, Convention Center

No B.S., just meaty content at Microsoft's DirectX Developer Day! You'll get:

- The complete Microsoft High Level Shading Language
- Power debugging using Visual Studio .Net and DirectX extensions
- The latest shader techniques and management
- The latest innovations from Microsoft Graphics Research division
- Interactive analysis of Windows Games using D3DSpy
- How to make your game install transparently
- How to turn your game into a powerful driver test tool

This is a rare opportunity to get a massive injection of cutting-edge developer-oriented information, all in one convenient location, from the DirectX development team.

audio keynote

Keynote
Aural Subjectivity, A Personal Perspective

Dane Davis
Saturday, March 8 • 2:30-3:30pm
F1, Convention Center

Audio subjectivity. The game player as cinematic protagonist. Escaping the proscenium. Using subjective storytelling concepts to make the game playing experience first person rather than third person. Emulating the human interface. Selective focus. Our ears and the circumference of geography. Aural masking. Mental processing lag. Synaptic prioritization. Clogging under pressure. Clarity of the Zone. Taking the player through the virtual time and space through sensory organs feeding wetware rather than as an extension of the machine. How far does game hardware and software have to evolve for this to happen with the sound?

Dane Davis
Dane A. Davis is an Academy Award winning sound designer. As a student making his own films at California Institute of the Arts, he created soundtracks for student films and eventually mixed most of the films being made at the school. Dane continued making soundtracks for experimental short films and worked as a sound editor on longer film projects. In 1986 he founded Danetracks in Hollywood in a closet of the company he worked for during the day as a sound transfer operator. He continues working primarily as sound designer and supervising sound editor on feature films such as *The Matrix*, *Treasure Planet* and *8 Mile*. He also creates sound design for TV ad campaigns for Nike and Pirelli. Currently, Dane is active in exploring the psycho-acoustic boundaries of interactive media as the technology approaches the depth and detail potential of motion pictures. He considers the application of the subjective emotional and dramatic principles of cinema sound design to the non-linear paths of game play to be the challenge of the current decade.

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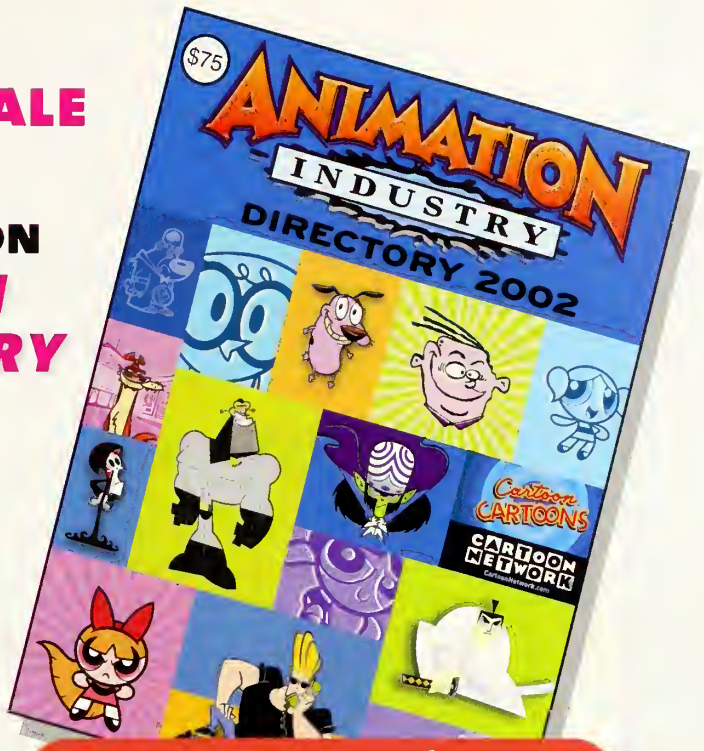

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☐ 05.Casting/Recording Director	☐ 11.Director	☐ 18.Lawyer	☐ 24.Programmer	☐ 31.Supervisor	☐ 38.Other (Specify)
☐ 06.Creative Director	☐ 12.Editor	☐ 19.Manager	☐ 25.Publicist	☐ 32.Supplier	
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GDC 2/03

audio track

Creating the stunning audio players demand requires a unique fusion of craft and technology. From sessions designed to polish the skills of a veteran composer to talks that shed light on programming techniques to bring those compositions to life, the Audio Track offers musicians, sound designers, programmers, and game designers real world information needed to take game audio to new heights.

Roundtable – Advanced

The Art and Craft of Composing Interactive Music

Alistair Hirst *See page 126 for bio*
Thursday, March 6 • 10:15-11:15am
F1, Convention Center

Composing interactive music for games presents a unique challenge, as the music must be flexible enough to adapt continuously to variable gameplay and also work as music at the same time. This roundtable focuses on the art and craft that go into composing interactive music rather than the mechanics of specific systems.

Topics covered include:

- Balancing the need to complete musically meaningful phrases against that of increasing the responsiveness of the music to gameplay
- Mapping of game parameters to music playback parameters
- Examining various compositional techniques and structures and how they can be used for maximum impact
- Lessons we can take from scoring for linear media, what does and does not work
- Trade-offs between the choice of playback methods, and production quality, latency, and variability of the music.

Attendees should bring their own ideas and solutions to these challenges.

Takeaway: Attendees leave with an understanding of many of the issues involved in composing interactive music for games, including mapping game parameters to musical variability, and balancing the need to complete musically meaningful phrases against that of increasing the responsiveness of the music to gameplay. Lessons from linear media, playback issues and trade-offs, and composition tips and tricks are also discussed.

Intended Audience/Prerequisite: Composers who are writing or would like to write music that dynamically adapts to changing gameplay. Familiarity with various types of interactive music systems is helpful, but not necessary.

Roundtable – Intermediate

Audio Business Issues

Rich Goldman *See page 123 for bio*
Saturday, March 8 • 10:30-11:30am
F1, Convention Center

How do you negotiate a fair agreement for music and sound effects that satisfies both the game developer and the composer or audio production company? What are the potential liabilities that face the music producer and the game developer when music and effects are commissioned or licensed? What future challenges are represented by the Web as a global distribution system, online gaming, and convergent television? This roundtable discusses industry approaches to agreements, negotiations, intellectual property, licensing, and budgeting both from the game developer's and audio contractor's point of view.

Takeaway: Independent music and audio producers will be better prepared to understand and negotiate terms of production agreements with developers and publishers after attending this roundtable.

Intended Audience/Prerequisite: Independent music composers, music producers, and sound designers, along with in-house game producers, benefit from attending this session.

Lecture – Intermediate

Audio Programming for Very Large Projects

Dave Ranyard *See page 141 for bio*
Friday, March 7 • 12-1pm
F1, Convention Center

Audio coding has come a long way since the beeps and bleeps of the old ZX Spectrum. Nowadays, support is required for many different clients of game development, from the obvious (sound designers, musicians, game designers) to the nonobvious (animators, artists, lip-synchers as well as non-audio coders and even scriptwriters). In addition, audio content has increased with particular attention focused on foley effects, vehicles, weapons, music, dialogue, and cutscenes, all of which need database support and tools to get them into the different parts of the game system.

As games get bigger, system resources get squeezed. More and more performance is expected from fewer resources. The audio programmer must develop imaginative and creative ways of getting "the most out of the machine" while still supporting all the clients outlined above.

How do we build flexible audio systems that meet all the requirements of very large projects? This lecture draws from experience developing the audio engine and database support for Sony Computer Entertainment's The Getaway. It discusses some of the major problems encountered and how they were solved. It examines how a flexible set of sound controls were developed which could be attached in any number of ways to in-game objects and parameters. This allowed one audio system to be developed which solved many varied in-game requirements.

Lecture – All

Composing, Producing, and Implementing an Interactive Music Soundtrack for Games

Chuck Doud *See page 120 for bio*
Friday, March 7 • 4:30-5:30pm
F1, Convention Center

This lecture covers compositional techniques and

approaches used to create nonlinear interactive music soundtracks for videogames. The presenter specifically discusses and demonstrates the soundtrack for the PS2 title THE MARK OF KRI, including creation and implementation of the interactive soundtrack.

Takeaway: Attendees gain insight into topics such as getting the right people for the right job; handling relationships between level designer, producer, composer, and interactive programmer; handling relationships between composer, interactive programmer, and game engine programmer; handling relationships between composer and sound designer; approach to the composition; and programming an interactive score.

Intended Audience: This lecture is primarily targeted at composers, producers, and persons involved in interactive soundtrack implementation.

Lecture – All

DESIGN WITH MUSIC IN MIND: INTEGRATING AN IMMERSIVE GAME SCORE WITH YOUR GAME DESIGN

Guy Whitmore *See page 147 for bio*
Thursday, March 6 • 3-4pm
F1, Convention Center

Music in games is becoming increasingly important and is an area ripe for innovation and product differentiation. There is a trend away from detached linear scores to music that is more tightly integrated with and relevant to gameplay. Music does not have to be merely a detached backdrop having little to do with the action on the screen. Music can ebb and flow seamlessly with the game, adding emotional depth and soul to each scenario. Having music that is appropriate to every game situation is crucial to the suspension of disbelief that a game must maintain.

There are a growing number of game developers integrating highly adaptive music scores into their games. What is "adaptive music"? Adaptive audio is a term used to describe audio and music that reacts appropriately to and even anticipates gameplay, and therefore is capable of being a seamless part of the gaming experience. The term "interactive audio" is also used in this way, but is more broad and has been misused and overused.

Linear music is analogous to 2D prerendered art, as adaptive music is analogous to 3D game-rendered art. Game-rendered art assets introduced the ability to view objects from any side or distance and the flexibility to create a truly interactive game environment, which put gamers in a more immersive and controllable environment. The analogy to adaptive audio is very literal. Currently, most game music is prerendered, mixed in fairly large sections prior to being put in a game. Music that is more adaptive is game-rendered, and music components are assembled by the game as it is being played. This flexibility is what allows adaptive music to synchronize with the game engine and become more integral to the game.

Takeaway: Music has the potential to be more than window dressing for games. It can be an element that directly supports gameplay and heightens specific emotions. With a healthy collaboration between game designer and composer, music can be an effective game design tool, helping to establish and reinforce the core game design. Active aural landscapes working in tandem with 3D visual environments can set the stage for truly immersive gameplay.

Intended Audience/Prerequisite: The intended audience for this lecture is game designers that are interested in exploring the potential and learning the benefits of highly integrated game scores. No prerequisite is necessary.

Panel – Intermediate

DOES MELODY MATTER?

Rod Abernethy, Dave Adams, Bill Brown, Marty O'Donnell, Chance Thomas, Chris Vrenna *See pages 114-148 for bios*
Friday, March 7 • 9-10am
F1, Convention Center

Does melody matter? Melody is the soul of any soundtrack. Whether it's a TV, film, or game soundtrack, melody helps create the emotional drive in any entertainment experience and plays a major role in sustaining the memory of that experience. Some may disagree and say melodies have no place in today's videogames. Beginning with examples in different styles, this session demonstrates a few basic techniques in music composition that contribute to a strong, solid melody. Examples of melodies in television and film and how those same compositional techniques are applied to videogame composition are explored. Examples from and dissection of the audio in HALO, RAINBOW SIX, GHOST RECON, and ALICE rounds out the panel.

Takeaway: This talk session inspires game composers to continue to elevate the entire gaming experience through the use of melody, regardless of genre.

Intended Audience: Videogame composers of any level interested in new techniques for writing melodies can benefit from this session, as well as game developers of all areas of development who have an interest in game music composition.

Sponsored by Creative Labs

EAX ADVANCED HD: EAX 4.0

Jean-Marc Jot & Daniel Peacock
See pages 128, 139 for bios
Thursday, March 6 • 3-4pm
C3, Convention Center

This presentation provides an introduction to the new EAX 4.0 environmental 3D audio API, along with hints and tips for programming high-performance 3D audio engines on the PC with DirectX or OpenAL.

Creative launched EAX 1.0 five years ago and, thanks to the support of the developer community, has made it into the most successful PC audio gaming API. With the introduction of the SoundBlaster Audigy DSP chip in 2001, Creative provided the horsepower needed to take game 3D audio to a new level of realism and detail. A major new functionality introduced in EAX 4.0 is the spatialization of multiple reverberant environments. This extension preserves the concepts and interfaces of EAX 3.0, while minimizing the extra overhead involved in supporting multiple environments. EAX 4.0 enables the listener to recognize the room or environment in which a sound source is located even when it is separate from the listener's. It also enables more realistic transitions of the listener from a room or environment to another. Another important new feature of EAX 4.0 is an extensible library of audio effect algorithms (currently including Chorus, Flanger, Echo, Frequency Shifter...) within a mixing framework analogous to traditional studio production systems.

The final portion of the presentation reviews hints and tips to optimize PC audio engines for the best performance and stability. The focus is primarily on how to best program with Direct X and OpenAL and take advantage of the features of Creative's SoundBlaster Live! and Audigy cards.

Intended Audience: Game programmers and sound designers familiar with 3D audio APIs, game audio engines and audio production/mixing techniques.

Takeaway: This talk gives the attendee a basic understanding of Creative's EAX 4.0 environmental 3D audio API. EAX 4.0

audio track

introduces the spatialization of multiple reverberant environments and an extensible library of audio effect algorithms. The talk discusses the design of optimized game audio engines that take best advantage of hardware signal processing on the PC platform.

Panel – All

How to Mix Discrete Surround Sound for PlayStation 2

Murray Allen, Rik Ede, Jason Page, Raymond Usher
See pages 114-148 for bios
Friday, March 7 • 3-4pm
F1, Convention Center

This panel aims to educate game developers on how to best utilize and incorporate discrete surround sound in games for the PlayStation 2. Pros who have real-world experience implementing this technique offer tips and tricks.

Takeaway: Attendees learn how to use discrete surround sound in games for the PlayStation 2, as well as how discrete surround sound can enhance the gaming experience.

Lecture – Intermediate

Game Audio: Coding vs. Aesthetics

Leonard Paul *See page 139 for bio*
Thursday, March 6 • 4:30-5:30pm
A2, Convention Center

The key to creating successful immersive game audio is the balance between the technical and creative aspects of audio generation. Too often one is sacrificed at the expense of the other due to their assumed opposing natures. In the "good old days" of videogame audio, one person would wear both hats of audio coder and sound designer/composer. In today's videogame world with escalating budgets and highly complex game consoles, the work must be split between several people, which threatens to increase this fundamental rift. If one sides with the creative, then the approach becomes very similar to producing audio for film. If one sides with the technical, then the audio is seen as something that is fundamentally defined by the constraints of the target platform. The problem with the creative approach is that often not enough thought is given to the highly interactive aspects of videogames, while also not placing enough emphasis on the limitations of the target platform. The problem with the technical approach is that it often misses out on the subtle emotive nuances which make audio so important in the total videogame experience, and may overly limit the sound designer by what is easily realizable on the target platform. What is really needed is to approach game audio production simultaneously from the creative and technical viewpoints and arrive at the balance known as successful game audio.

Takeaway: This session offers a new comprehensive viewpoint to produce effective game audio, which balances the technical side with the creative side. Topics from the creative side that can influence the technical side will be explored in detail as well as the technical issues that influence the creative side. The overall audio design must work from both sides simultaneously, but most times the audio is flawed due to direction from one side at the expense of the other.

Intended Audience/Prerequisite: The audience of this talk covers a broad range of all those involved with the management and development of game audio. Audio coding and sound design are prerequisites.

Lecture – Intermediate

Geometric Modeling of Sound Propagation

Thomas Funkhouser *See page 122 for bio*
Thursday, March 6 • 11:30am-12:30pm
F1, Convention Center

Realistic models of acoustical environments are important in immersive 3D games because they combine with visual cues to aid localization of objects, separation of simultaneous sound signals, and formation of spatial impressions of an environment. Unfortunately, most current game engines rely upon "ad hoc" audio spatialization techniques (such as pan effects, regions of influence, and/or feedback delay networks), providing "plausible" reverb effects rather than realistic acoustics. As a result, the user is not able to utilize important auditory cues for navigation and localization. Even worse, artifacts and errors due to unrealistic acoustics can ruin the suspension of disbelief that helps users feel presence in an immersive 3D game.

This lecture describes recent advances in realistic geometric acoustic modeling for 3D games. It focuses on a recent beam-tracing method that enables interactive updates of geometric sound propagation paths from moving sources to moving receivers in a real-time sound server. The most important idea behind this method is asynchronous precomputation of spatial data structures that encode potential sequences of sound scattering in a manner that enables interactive updates of propagation paths in a real-time system. The main features of the method are: it supports interactive updates of sound propagation paths; it models propagation due to specular reflection, transmission, and edge diffraction; it scales to support large 3D environments; it has been validated with measurements in simple environments; and it never misses significant propagation paths, which is important for maintaining temporal coherence in interactive auralization systems.

These features are shown with live demonstrations and videos.

Takeaway: Realistic acoustic modeling with early reflections and diffractions is possible in 3D games, and beam tracing is a practical method to support it. These ideas may significantly alter sound in 3D games, as game designers will no longer consider it acceptable to provide only ad hoc sound effects with artificial reverb, and game developers will be able to incorporate more physically based acoustical simulations based on geometric acoustics.

Intended Audience: This lecture is useful for game developers interested in providing realistic acoustics, as well as visionaries interested in seeing what is possible in real-time sound simulation.

audio track

Panel – All

Interactive Mixing

Buzz Burrowes, Thomas Engel, Scott Gershin, Brian Schmidt
See pages 114-148 for bios
Thursday, March 6 • 4:30-5:30pm
F1, Convention Center

3D rendering previews of games have been available to developers for quite a while. Manipulation in realtime of dynamics, propagation, reverb, and other vital sonic elements in a 3d environment are only just now coming into focus. At last, Interactive Mixing is becoming a reality, but how will it evolve? How can developers "master" interactive audio more effectively? How can emotional impact be increased with these tools? This panel will address these and other issues with some of the highest-ranking veterans of game audio in programming and production.

Lecture – Intermediate

Making Sound Designers Independent: Techniques to Integrate Audio into Games

Thomas Engel *See page 120 for bio*
Friday, March 7 •10:30-11:30am
A2, Convention Center

Attaching sound effects or pieces of music to certain events in a game can be a challenge. With an ever increasing amount of content and complexity in games it simply no longer makes sense to have a programmer integrate every single sound effect that was designed by a sound designer or every little piece of music composed for the game. The session discusses a technique to integrate audio into games that removes a lot of the classical interlocks between audio programmer and sound designers. Real-time audio mixing challenges and solutions will also be discussed. A QA session to discuss the solution presented as well as possible other solutions will end this presentation.

Sponsored by Dolby

Master Class Techniques for Surround Sound in Games

Kristoffer Larson *See page 130 for bio*
Friday, March 7 • 10:30-11:30am
C2, Convention Center

This session provides an in-depth look at surround mixing techniques used by audio professionals in games. The focus of this session will be techniques that are applicable for games on Sony PlayStation 2, Microsoft Xbox, Nintendo Gamecube, and PC. Surround mixing principles that are used in broadcast, cinema, and music applications will be presented for discussion.

Specific mixing issues concerning matrix technologies such as Dolby Surround and Dolby Surround Pro Logic II will be covered in depth. Topics will include decoder operation, level usage, and dynamic range preservation.

Considerations for Dolby Digital, such as proper center-channel usage and LFE techniques, will be presented. In addition, discrete panning tips for both mono and stereo sources will be discussed.

Other general audio issues that bear heavily on surround audio quality, such as transportation formats and multiplatform audio preparation, will be touched on. Finally, useful, in-depth information on the various surround encoding processes will be given.

Takeaway: Attendees take away a better artistic understanding of the surround technologies they already use. This understanding enables game audio professionals to improve the current standard of interactive surround game audio.

Intended Audience: This presentation is intended for advanced game audio professionals that have experience mixing surround for one or more released titles. Questions and comments from the audience are encouraged.

Lecture – Intermediate

Physics-Based Synthesis of Sound Effects

Perry Cook *See page 117 for bio*
Saturday, March 8 • 12-1pm
F1, Convention Center

Sound effects in games have advanced to amazing states of realism and quality, yet one large disparity still exists between game graphics and game sound. Physical models play an increasingly important role in computing the motions and interactions of objects and characters, but a much less important role in the actual generation of sound. Today game sound is generally not truly "synthesized" from models, but rather is manipulated and mixed on the fly using existing prerecorded/designed PCM samples.

This session overviews and demonstrates the state of the art in research on physics-based parametric synthesis of sounding objects and interactions. Introductory concepts are followed by advanced recent developments and a look at the future of parametric sound models. A specific emphasis is placed on efficient yet responsive algorithms.

Covered modeling topics include: modeling struck resonant objects (bars, bowls, planks, plates, glasses, swords), modeling granular objects (coins, ice cubes, gravel, leaves), modeling blown objects (pop bottles, wind), modeling striking interactions, and modeling scraping and friction.

Demonstrated systems include objects of each model variety, walking analysis/resynthesis, and environments with real-time interaction.

Takeaway: Much is known about how to compute sounds directly from physical or pseudo-physical models, and these models often are not as complex as one might assume. There are great gains possible in realism, interaction, and memory use/bandwidth.

Intended Audience/Prerequisite: This session targets algorithm developers with some basic familiarity with Newtonian physics and programming. Rather than relying on math, intuitive explanations will be used.

Panel – Intermediate

Producing Orchestral Scores for Games

Bill Brown, Dan Irish, Tommy Tallarico, Jack Wall
See pages 114-148 for bios
Thursday, March 6 • 9-10am
F1, Convention Center

In this session, the speakers will discuss making orchestral scores for games a reality from the point of view of the producer as well as the composer.

On the production side, topics include how an orchestral score might benefit your game, developing and selling the budget, exploring the cross-promotional potential of an orchestral soundtrack and possible added revenue from selling the soundtrack CD.

From the point of view of the composer, topics include methods of writing game specific music for an orchestra, choosing the orchestra, and selling your producer on the orchestra.

Key points that are addressed are the specific production methods, the standards of excellence and how an acute attention to detail is required to reach any degree of success in an orchestrated soundtrack.

audio track

Lecture – Intermediate

The Seven Secrets of Voicedver Prdduction

Chris Borders & Matt Case
See pages 115, 116 for bios
Friday, March 7 • 10:30-11:30am
F1, Convention Center

Remember when you could get away with having your programmers and testers read the lines for the game dialogue? Well, those days are over, way over. A full, rich entertainment experience on today's platforms demands high quality, professionally produced audio assets. Key to the audio quality is the voiceover. If its quality is not up to par, your audio falls flat, dragging the overall production level of the whole game experience down. To remain competitive in this arena, game producers are turning to the tried and true techniques of voiceover production as honed over the decades by Hollywood's traditional media and entertainment companies, and finding ways to borrow from Hollywood the people and processes that make for great voiceover.

This session focuses on the latest Hollywood production methods being adopted by game producers to create better voiceover assets. From getting the right start by ensuring that you have a well-polished script (because pairing the world's best actor with a poorly written script leaves you with nothing more than bad entertainment), to securing the ideal actors at below-market rates; dealing with the unions without dealing with the unions; directing professional actors to capture your characters' personalities; systematically managing the dialogue files; the tricks to adopt, pitfalls to avoid, and tips to remember that will help ensure optimal quality, cost containment, and sticking to the schedule.

Takeaway: Attendees learn the best processes and techniques for optimal management of voiceover production. These tips and strategies, developed and refined over the years by Hollywood production companies, provide for greater efficiency in the production of voiceover assets while enabling higher quality, cost savings, and time savings in the production process.

Intended Audience: Game producers and production managers from the developer or publishing communities with an interest in managing voiceover production more effectively and efficiently.

Sponsored by Dolby

Sex, Lies, and Surrdund Sound on Any Platform

Jack Buser *See page 116 for bio*
Thursday, March 6 • 10:15-11:15am
C2, Convention Center

This seminar is an introduction to the various surround sound technologies available, complete with insider details on how the surround systems operate.

All major game platforms will be covered, including Sony PlayStation 2, Microsoft Xbox, Nintendo Gamecube, and PC. High-level implementation details on these platforms will be discussed, and will show how to integrate surround sound into any game engine.

Statistics on installed base and attach rates will be made available. Other topics will include common implementation pitfalls, artistic techniques, and proper technology decision making.

Takeaway: Attendees will away a thorough understanding of interactive surround audio on any game platform. Programmers know exactly which technology and implementation path they should choose for their game engine. Sound designers carry away a good understanding of the techniques required to create a convincing surround experience.

Intended Audience: This seminar is intended to give audio programmers and sound designers an introduction to interactive surround sound. Programmers and sound designers that already have experience with surround sound, but want to hear more about the latest technologies, tools, tips, and techniques, should also feel free to attend.

Lecture – All

Smartly Define and Use Ydur Audio Budget

Eric Nunamaker *See page 138 for bio*
Saturday, March 8 • 9-10am
F1, Convention Center

As the game industry grows in leaps and bounds, the demand for great audio also rises. Along with this increase there are new companies emerging to tackle the demand for sound assets. But can a fair bang for your buck be achieved? Can great audio be obtained for a lower bid? Does a small audio budget really necessitate limited quality or quantity? This presentation covers the aspects of defining an audio budget, views on how to properly use this budget, and what to look for in obtaining quality sound assets. Specifics include the "three-way" vs. "two-way" approach to audio programming and platform limitations. Other topics covered include: where to put your money (technical or talent), sound studio bids and what to expect, finding the balance between quality and quantity, and cutting costs on a project.

Takeaway: Attendees come away with an idea of a well-structured audio budget, where to put that money, and ideas on stretching the audio dollar.

Intended Audience: All sound-related positions as well as companies with no in-house audio personnel.

Sponsored by DTS

Techniques fdr Implementing Interactive Surround Sound

Rik Ede *See page 120 for bio*
Friday, March 7 • 3-4pm
C2, Convention Center

Discrete surround sound is the next frontier for added realism and impact in gaming, but it takes careful planning and more than a little cleverness to effectively implement it. How does interactive discrete surround sound affect how you compile your archive? How do you budget your MiPS? What tools can you use? What tools shouldn't you use? Are there any rules on how to do it? Learn what to do, and what NOT to do, from some pioneers in the area of interactive surround sound. Learn how games like SSX:Tricky, Street Hoops, FIFA Soccer 2003, and Grand Theft Auto: Vice City were able to raise the bar on realism using surround sound.

Takeaway: Discrete surround sound is the next frontier for

audio track

added realism and impact in gaming. Learn what it takes to effectively implement interactive multichannel audio into a game from guys that have done it. Learn about tools, archiving and planning considerations vital to the successful implementation of discrete real time interactive surround sound.

Intended Audience: This session helps anyone who is currently working on, or plans to work on implementing real time interactive surround sound on the PlayStation 2 platform.

IA-SIG Town Hall Meeting

Friday, March 7 • 1:30-2:30pm
C4, Convention Center

The IA-SIG was born out of the Audio Town Meeting at the Computer Game Developers Conference in April of 1994. The Interactive Audio Special Interest Group (IA-SIG) exists to allow developers of audio software, hardware, and content to freely exchange ideas about "interactive audio". The goal of the group is to improve the performance of interactive applications by influencing hardware and software design, as well as leveraging the combined skills of the audio community to make better tools.

The IA-SIG has been influential in the development of audio standards, features, and APIs for Microsoft Windows and other platforms, and has helped numerous hardware companies define their directions for the future.

Anyone with a commercial interest in multimedia audio is encouraged to attend this town hall meeting. It is a great chance to get updates about IASIG activities during the past year and to influence planning for the year ahead.

Keynote
Applying the Lessons Learned from Korea and Lineage to Today and Tomorrow's Online Games

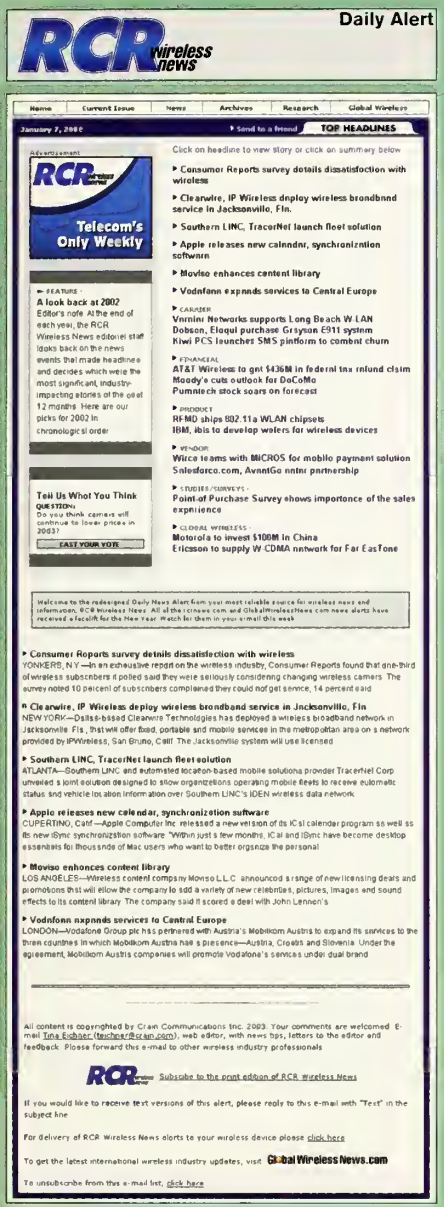
TJ Kim
Friday, March 7 • 10:30-11:30am
Almaden Ballroom, Hilton

In 1998, a Korean company called NCsoft released its flagship product, Lineage. This game has become the world's top subscription-based online game. The success of this product spawned many other gaming products and companies in Korea, eventually cementing Korea's leadership position in a growing, and at times fledgling, industry.

Now, U.S. companies see Korea as a primary market in which to release their products. Partnerships have spawned between western and eastern companies, changing the face of the computer games industry. This is no longer a "niche trade," with isolated markets—it has become a powerhouse industry and has been recognized as such worldwide. NCsoft CEO Tack Jin Kim takes you on a journey, describing how a small company in a small country came to be one of the giants in the games industry. He will focus on what the future holds for online games, how the east and west can work together to meet the challenges this industry faces, and what we can do to bridge the gap between foreign markets.

TJ Kim
Tack Jin Kim is the CEO of the Seoul, Korea based company NCsoft, which he founded in March of 1997. NCsoft is the publisher of the world's largest online game: Lineage: The Blood Pledge. Lineage boasts more subscribers than Ultima Online, Everquest, and Asheron's Call combined, with more than three-million active accounts in Korea alone. His online experience runs deep, as he has been in the Internet business for over 12 years. Prior to NCsoft he was blazing trails all over Korea, founding Hanme Soft in 1989, serving as the development team head for Korea's first Internet Online Service: Aminet (currently Shinbiro) in 1995-96. In addition to his duties with NCsoft he also finds time to be the regional director for Microsoft. Tack Jin's amazing success has been widely recognized; he was among the Korea Economic Daily's 100 Venture Figures in January of 2000, and was selected as "Man of the Year" by the Computer Reporters Association in 1989.

New Year. **New Look.**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Apple releases new calendar, synchronization software
Moviso enhances content library
Vodafone expands services to Central Europe
A look back at 2002
Editor's note At the end of each year, the RCR Wireless News editorial staff looks back on the news events that made headlines and decides which were the most significant, industry-impacting stories of the past 12 months. Here are our picks for 2002 in chronological order
Tell Us What You Think
QUESTION:
Do you think carriers will continue to lower prices in 2003?
CAST YOUR VOTE
Welcome to the redesigned Daily News Alert from your most reliable source for wireless news and information, RCR Wireless News. All of the crnews.com and GlobalWirelessNews.com news alerts have received a facelift for the New Year. Watch for them in your e-mail this week.
Consumer Reports survey details dissatisfaction with wireless
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Southern LINC, TracerNet launch fleet solution
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CTIA
Ericsson soars but worries loom
Linux developer stakes smart phone OS war
PCS auctions in Colombia, Ecuador to move forward
Samsung challenges Motorola in Chinese market
Vendor: Commercial agreements are sole obstacle to MMS
Japanese government mulls fixing fixed-to-mobile charges
Asia likely to be test bed for profitable 3G
HONG KONG—For debt-choked Western operators, third-generation (3G) profits have proven to be a mirage, and if the technology can be made viable, it
Tell Us What You Think
QUESTION:
What is the best pricing model for data?
CAST YOUR VOTE
Czech cell phone users call for boycott
State companies join long-distance tariff war in India
China forecasted to have 384 million mobile users in 2006
Rogers Wireless expects 2003 network revenues of C$1.9 billion
Pyramid: Brazil to attract investments in 2003
Namibia's second mobile network under scrutiny
Mitsui to expand mobile content business
Ericsson soars but worries loom
OSLO, Norway—Ericsson saw its share price rise about 20 percent on the Stockholm, Sweden, bourse in the opening week of 2003 after a series of new contracts for third generation (3G) technology, but this optimism may be short lived. Ericsson just landed Taiwan's second third-generation (3G).
THE INTERNATIONAL DATABASE IS NOW AVAILABLE!
Completely updated as of October 2002, GlobalWirelessNews.com's International Database includes contact information for mobile operators around the globe, along with subscriber figures as of 30 June, 3G migration details, and technology and vendor details. The International Database is an expanded version of the Worldwide Carrier Chart, available by region or the entire world. For more details, access Databases on the site
Linux developer stakes smart phone OS war
OXFORD, United Kingdom-As Microsoft and Symbian fight for dominance in the burgeoning smart-phone operating system (OS) market, U.S.-based Montavista Software has announced it is working with NEC to develop a Linux based OS specifically targeted for use within cell phones. According to
PCS auctions in Colombia, Ecuador to move forward
BUENOS AIRES, Argentina-The Colombian government and Ecuadorian courts have passed measures that will push forward personal communications services (PCS) auctions in each country, allowing the entry of third cellular competitors in both countries. The result looks promising for the alliances
Samsung challenges Motorola in Chinese market
BEIJING-Samsung received the Chinese government's approval to directly sell its handsets on the domestic market, bypassing import agents. Market leaders Motorola and Nokia already sell directly. Samsung expects China to have generated US$8.4 billion in revenue in 2002, compared with Motorola's
Vendor: Commercial agreements are sole obstacle to MMS
HELSINKI, Finland—The inability to send multimedia message service (MMS) messages between different mobile operators' networks in Finland and Europe is mainly due to commercial rather than technical issues, the Helsinki-based Finnish MMS Center (MMSC) vendor Tecnomen has warned the national
Japanese government mulls fixing fixed-to-mobile charges
TOKYO-The Japanese Telecom Ministry launched a discussion regarding introducing the "carrier pre-fixed system" known as "Myline service" for calls from fixed-line phones to mobile phones. In Japan, charges for calls from fixed lines to mobile phones traditionally have been fixed by mobile
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business & legal track

Studios face enormous challenges today. To create a business environment that supports the creation of superior games, developers need both sound business strategies and outstanding tactical execution. The Business and Legal Track looks at game development from the standpoint of running the business and offers strategies for developers who need to understand complex business issues.

Roundtable – All

Blueprint for the Next Step: Startup to Stability

Clarinda Merripen *See page 136 for bio*
Thursday, March 6 • 10:15-11:15am
Santa Clara II, Hilton
Friday, March 7 • 9-10am
D, Convention Center
Saturday, March 8 • 4-5pm
D, Convention Center

Growing pains can make or break a company. For example, most companies struggle with the process of expansion. Going from 12 people who all know each other and put out a hit game together in a dumpy, one-room office to 40 people in a sleek new office space with 10 separate offices and two large, tightly scheduled projects creates enormous organizational strain. More employees and more projects create interdepartmental and interpersonal conflicts, culture clashes, and policy questions that can blur a company's focus when it's most needed.

What management structure must be created to support growth? In other words, what do you do to move a company from a start-up to an established company? The panel and audience work together to define the characteristics of a start-up versus the characteristics of an established company.

Takeaway: Participants are able to look at their company with a critical organizational eye. More importantly, they leave with concrete tools and ideas to manage more effectively.

Intended Audience: All levels of management, from team leaders to CEOs.

Roundtable – Intermediate

Checklist for a New Publisher

Ray Muzyka *See page 138 for bio*
Thursday, March 6 • 4:30-5:30pm
Santa Clara II, Hilton
Friday, March 7 • 3-4pm
D, Convention Center
Saturday, March 8 • 12-1pm
D, Convention Center

Working with a publisher is hectic at the best of times—there are a lot of things that have to be figured out in a big hurry. Some are business issues such as the terms of the new deal, and others involve the typical production issues such as marketing, quality assurance testing, promotion, localization, and audio. Publishers often have certain basic expectations in scheduling, marketing deliverables, and feedback from the developer during development. Marketing will require materials for advertisements, PR will require demos and visits to or by press, quality assurance testing will require checklists for the new publisher to get up to speed, and localization will require detailed planning on how to quickly integrate with translators from the new publisher. This roundtable will examine how developers can successfully build up a new relationship with a publisher.

Takeaway: Attendees emerge with a better understanding of items that need to be discussed when starting out with a publisher, covering marketing and promotion, quality assurance and compatibility testing, localization, and audio production, as well as getting the development milestones agreed upon. The lessons learned are applicable to any developer working with a publisher.

Lecture – Intermediate

Completion Bonding for Game Development Projects

Jason Kay, Frank Pape, James Thoma
See pages 114-148 for bios
Thursday, March 6 • 9-10am
Almaden Ballroom, Hilton

Completion bonding is perhaps one of the most misunderstood financial transactions in the game development process. This session sets the record straight on what bonding is and how it can benefit developers and publishers alike. This session uses a mock game development deal to explain the mechanics of a completion bond from the perspective of a developer, a publisher, and an attorney.

Takeaway: Attendees learn what a completion bond is, what situations it covers, and the cost/benefit analysis from both a publisher's and a developer's perspective of using a completion bond in a game development deal.

Intended Audience/Prerequisite: Established developers with at least one published title. General knowledge of a game publishing deal structure is required. Knowledge of how to read a financial statement a plus but not required.

Lecture – Beginner

Developing Wireless Games: From Idea to the Marketplace

Oliver Miao *See page 136 for bio*
Friday, March 7 • 3-4pm
A2, Convention Center

Wireless games are at the cusp of grabbing the attention of mobile phone users around the world as carriers, manufacturers, publishers, and developers all work to bring games into the marketplace. As the games roll out, it is important for companies to understand the wireless games market and the risks and rewards involved in entering this market. This presentation gives an overview of the market, the target audience, the technology, and the business models behind wireless gaming.

Along with market overviews, the lecture also provides specifics on the available code platforms, the specific handsets released by manufacturers, the North American

business & legal track

carriers building the market, and a listing of the most successful games on the market. Further discussion is given to future market events that may influence the direction of wireless gaming.

Takeaway: This presentation gives an overview of the risks and rewards of developing wireless games. Developers learn the steps involved from the conception of a game idea to the actual release of a wireless game into the marketplace. Concrete information on the players and technologies in the marketplace gives developers a strong foundation for making informed decisions about entering the wireless games market.

Intended Audience: This lecture is intended for those interested in exploring the wireless game market. Developers and publishers get key information for making decisions about entering this emerging market.

Lecture – Intermediate

Doing Business with the Telecom Industry: Understanding their Deal Terms, Culture, Rites, and Rituals

Dan Scherlis *See page 142 for bio*
Saturday, March 8 • 12-1pm
Almaden Ballroom, Hilton

The telecom industry is discovering entertainment software. Mobile network operators seek wireless games. Cable operators want games for interactive television. Internet service providers and portal companies are entering those spaces, as well as building their web-based game portfolios.

The problem is, telecommunications people are different from game developers and publishers. Their business meetings, presentations, and cultural norms make for communication problems. And they have different expectations for deal structures and deal terms alike.

This lecture examines the differences in each of these areas, and presents a field guide to telecom, with emphasis on practical advice for productive communications and negotiations, and for successful deal making. Specific suggestions are presented for sales presentations, for proposals and negotiations, and for resolving the two industries' conflicting expectations for content-deal structures.

This session emphasizes real-world examples drawing on work creating content deals for telecommunications giant Comverse and working with European mobile network operators. The lecture also contrasts experiences at AT&T and HBO with work as a game-industry CEO.

Takeaway: Participants gain an understanding of the telecom executive's point of view and are better prepared to get the deal and manage its delivery. They learn to interact more successfully from sales pitch to contract execution. They are aware of the different business pressures, decision-making processes, and company cultures, and how those factors drive deal-making behavior and expectations.

Intended Audience/Prerequisite: This lecture is intended for game producers and executives who do business with, or seek business with, telecom people, including publishers/developers of wireless or iTV games. Basic awareness of game-deal terms is helpful.

Roundtable – All

The Freelancer's Roundtable, Opus III

Francois Dominic Laramée
See page 130 for bio
Thursday, March 6 • 9-10am
E, Convention Center
Friday, March 7 • 4:30-5:30pm
E, Convention Center
Saturday, March 8 • 10:30-11:30am
L, Convention Center

This roundtable, now in its third year, brings together game development professionals who have chosen to forego the traditional employment market in favor of starting their own one-person businesses (or special-purpose service shops), those who sell their expertise as on-site consultants or remote members of a virtual team, and the people who employ them. Participants trade marketing tips, tricks on managing clients and remote developers, and assorted war stories.

Takeaway: Attendees learn how to manage a one-person business effectively, how to market their services, and what types of freelance expertise are sought after and by whom.

Intended Audience: The roundtable is open to all, but will be most beneficial to the lone wolves who do everything on their own, active freelancers eager to swap war stories, game development professionals who are considering a switch to the freelance lifestyle, and studio executives and producers who regularly deal with freelancers.

Roundtable – All

Giving Credit Where Credit Is Due: Unraveling the Credits Mess

Jim Charne *See page 117 for bio*
Thursday, March 6 • 3-4pm
L, Convention Center
Saturday, March 8 • 12-1pm
Santa Clara II, Hilton

In an age where team members jump from project to project, employer to employer, credits have emerged as a real bread and butter issue.

This roundtable explores steps that we, as an industry, can take to assure credits are fairly given and uniformly applied.

Takeaway: Attendees gain insight into why industry must find a way to assure credits that are honest, uniform, and reliable.

Intended Audience: Ideal participants are developer or publisher management who have ever been burned by hiring a team member with inflated credits, as well as development team members who want to make sure they receive an honest credit for their efforts.

Lecture – All

Going Global: Effective Strategies for Protecting Intellectual Property Worldwide

Scott Pink *See page 140 for bios*
Friday, March 7 • 9-10am
B2, Convention Center

This presentation provides unique insights in how to set up and manage an international intellectual property portfolio. The presenters discuss the four key elements of intellectual property protection and what steps should be taken to assure that those protections are not lost when your product crosses a border. They provide a unique inside view of how they applied limited resources to maximize the international protections. They discuss some of the practical realities of operating in international markets and how to avoid common pitfalls.

Takeaway: Attendees gain basic understanding of the necessary components of an international intellectual property strategy. Sample charts of intellectual property protection in other countries are provided.

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Roundtable – All

How to Get Paid on Time for Milestones

Jim Charne *See page 117 for bio*
Thursday, March 6 • 4:30-5:30pm
D, Convention Center
Saturday, March 8 • 2:30-3:30pm
L, Convention Center

Developers pour heart and soul into delivering great milestones on time. Publishers all too often do not work as hard to approve milestones and make payments on time.

This roundtable explores developer experiences in getting milestones approved and payment accelerated.

We must become as proactive in managing the approval and payment process as we are in our development process. Late payment can cause cash-flow problems. In its most extreme, late payment can lead to developer insolvency.

This program shares the experience and techniques of developers in maintaining milestone cash flow.

Takeaway: The milestone has not been completed until payment is received. Approval and payment processing must be effectively managed by the developer.

Intended Audience: Developer CEOs and CFOs who must make payroll twice each month.

Panel – All

How to Take Your Mobile Game to Market

Matthew Bellows, John Chasey, Oliver Miao, Itsuro Yoshimoto *See pages 114-148 for bios*
Friday, March 7 • 4:30-5:30pm
B1, Convention Center

Multiple paths to revenue exist today for mobile game developers; however, these routes are ill defined and difficult to navigate for newcomers. Despite this, operators, content publishers, and independent application distributors are buying applications and devices are hitting the market in volume now. This panel brings together three developers, each of whom has successfully pursued a different path to revenue. These developers discuss lessons learned, present practical advice, and discuss their experiences.

Takeaway: Developers understand how to bring a mobile game to market through the top three channels. Developers leave the panel with a clear idea of the key routes to revenue, timelines and resource considerations for each timeline, and where to start.

Intended Audience: Developers creating or considering creating mobile games that want to take their game to market successfully should attend this panel.

Sponsored by Criterion

How to Turn Your Game IP Into a Movie

Paul Baldwin *See page 114 for bio*
Thursday, March 6 • 11:30am-12:30pm
C4, Convention Center

Producers, agents, agencies, directors, studios, writers, talent, and the milk man...any and all of them can help you get a film deal but at the end of the day there is no guaranteed recipe for success. "Packaging" your IP is the first step in the long and often times sleazy road to the big screen. At the end of the day the same mantra applies for both games and movies...content is king.

Takeaway: Attendees will learn how to market a game property for the movie business and how to deal with the obstacles that can be encountered.

Lecture – Intermediate

The Intellectual Property Realm: New Challenges for the Developer

Stephen Rubin *See page 142 for bio*
Friday, March 7 • 3-4pm
B2, Convention Center

Like it or not, patents, copyrights, trademarks, and trade secrets shape every aspect of the way games are made and sold, and how developers are valued. Legal principles developed over decades may be ill suited to today's digital wizardry and virtual reality, chilling innovation and encouraging aggressive use of intellectual property to thwart competition. But there are markers of change. If the Supreme Court invalidates a copyright extension law, as some predict it will, a vast assortment of literary and cartoon characters such as Winnie the Pooh and Mickey Mouse become fair game for developers. Method patents are now subject to harsher scrutiny. Judges have begun to clarify the scope of recent legislation. Such developments form the core of the discussion of the intellectual property issues developers must understand to produce games that maximize available protection while side-stepping the legitimate rights of others. During a period of industry consolidation, the importance of intellectual property assets in developer valuation is also considered.

Takeaway: Intellectual property rights are an essential part of the game developer's environment. Handled wisely, and with little additional effort, intellectual property law can be used to maximize company value and avoid costly pitfalls.

Panel – All

Korea, Where Multiplayer Gaming Is King

Cindy Armstrong, Seung Hoon Choi, Robert Garriott, J.C. Herz, Won Il Sue
See pages 114-148 for bios
Thursday, March 6 • 3-4pm
B2, Convention Center

Korea is the gaming capital of the world and currently every U.S. game publisher and developer has its eyes on this small country that's no larger than the state of Indiana. Why? Because it's where big money in the gaming industry is being made, especially in the online gaming business. More than 5 million people are playing Blizzard's StarCraft and another 3 million subscribers are playing NCsoft's Lineage. Other subscription-based games are growing at phenomenal rates. Internet game rooms, also known as PC baangs, are cropping up on every street corner of Seoul. Seventy percent of the country's Internet users are also online gamers, compared to only 20 percent in the U.S. Aiding in the rapid growth is broadband, which in Korea has the highest per capita penetration in the world.

Why has Korea turned into this Mecca for online gaming?

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What are the factors surrounding gaming's phenomenal growth in Korea? Can publishers in the U.S. and other countries get a foothold in the burgeoning Korean market? What kind of learning can be applied to U.S. markets? This panel, led by NCsoft's Robert Garriott, takes an in-depth look at the Korean gaming market. How does it differ from the other markets? Should American and European developers design their games differently for Korean players? How critical is it to appeal to PC baangs? Can games designed for Korea be successful in the U.S. and Europe?

Takeaway: Attendees come away with a better understanding of Korea's gaming phenomenon. They understand the challenges and potential benefits in designing games for this very lucrative market and whether trends in Korea could soon be changing the face of gaming across the globe.

Intended Audience/Prerequisite: This panel is intended for all groups: developers, marketers, and executives. Technical prerequisites are low. Anyone curious about emerging markets will have an interest in attending this panel.

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Leveraging Online Resources to Make It as an Independent Game Developer

Dave Astle, John Hattan, Mason McCuskey, David Michael
See pages 114-148 for bios
Friday, March 7 • 3-4pm
C4, Convention Center

This session focuses on using resources available on the Internet to one's best advantage when creating independent games. The indie must get past "not invented here" syndrome and stop re-inventing the wheel. Instead, he should tap the Internet to find and use solutions to the common development problems, to supplement his existing team, and to expand his potential audience.

Takeaway: Conveys to developers how to leverage the Internet and World Wide Web to build their team, build their game, and sell their game.

Lecture – Advanced

Mobile Games: Japan and the Future

David Collier *See page 117 for bio*
Thursday, March 6 • 4:30-5:30pm
Almaden Ballroom, Hilton

Most of the money flowing through the mobile games business is in Japanese yen. Japan is a flash forward to a mobile games industry with millions of daily consumers. Come to this presentation to find out what's making Japan's mobile gamers tick, and what this means for the U.S. and European mobile-game markets as they mature this year.

Topics include:

- Screenshots and demos of leading Japanese mobile games
- Which companies are making money
- What are the killer apps?
- New technologies: 3D in phones, GPS and location information, audio engines, messaging, and cameras, and the applications that use them
- How to enter the market and work with Japanese publishers and mobile distributors
- Evolving services: from one-off games to packs
- Technical differences from U.S. and Europe
- Managing and marketing services
- Who's using what applications

Takeaway: Attendees learn how to compete as the mobile game business evolves. Issues including game design, marketing, planning, winning and keeping users, which technologies to bet on, and lessons from the future are explored.

Lecture – All

Negotiating the Best Deal Possible

Jay Powell *See page 140 for bio*
Thursday, March 6 • 9-10am
B2, Convention Center

This lecture gives tactical advice on how to negotiate a contract that protects the development team, satisfies the expectations of the publisher, and maximizes developer revenue. The lecture begins with the basics of contract negotiation such as term and royalty rate and progresses into issues such as ancillary rights and protecting your team in the event that the publisher cancels the project. The second half of the lecture educates developers who are creating their own intellectual properties on how to protect these and generate additional revenue.

Takeaway: Developers leave this lecture with the confidence and information they need to negotiate a contract that will not only benefit them financially, but also ensure their company is not in immediate jeopardy if a publisher cancels a project with no notice.

Intended Audience: New teams benefit from basic concepts, including royalty rates and whether to publish or distribute. More advanced teams take away knowledge on promoting their brand and protecting internal IPs.

Panel – All

Product Success in Online Software Distribution

Stevie Case, David Nixon, Paul Thelen, John Vechey, Margaret Wallace
See pages 114-148 for bios
Saturday, March 8 • 12-1pm
B2, Convention Center

Take a hot emerging online software distribution opportunity. Throw in four or five software industry giants intent on leveraging this new channel. Sprinkle in hundreds of game developers and publishers worldwide looking for new ways to turn games into money, and add millions of Internet consumers willing to pay for great content. What do you get? A new game software distribution opportunity with a new set of rules, design considerations, and production challenges.

Like any other facet of the videogame industry, not every title is destined to be a hit. To add further confusion, the titles or genres that are hits at CD-ROM retail stores are not the same titles that are hits in the electronic software distribution (ESD) channel. The rules are different, more different than the talented game designer would think, in fact.

So how does one design and build a game for success in electronic distribution? This panel is an assembly of developers, designers, and product managers who have played the ESD game, won some, and lost some. They're going to share some of their experiences and thoughts so that others might share in the pot of gold at the end of fiber-optic T1, too.

Takeaway: Not all products are appropriate for ESD. Success elsewhere does not guarantee success in ESD. Attendees learn key game design and gameplay factors that lead to successful downloadable games, including designing for genres besides puzzle games, and production and implementation similarities and differences from the "big" games. The relationship between web games and downloadable games is also explored.

business & legal track

Developers learn what to do to contribute to success post-release, and what not to do.

Intended Audience: The intended audience for this session is game designers and producers from game studios or publishers who have decided they would like to take a stab at online downloadable game distribution, and now.

Panel – All

Proven Strategies for Self-Publishing on the Internet: Real-Life Stories of What Works and What Doesn't

Vince Brody, Daniel Hart, Matt Mihaly, Joseph R. Varet, John Vechey, Gabe Zichermann
See pages 114-148 for bios
Friday, March 7 • 12-1pm
B1, Convention Center

This session focuses on the latest methods independent developers are using to self-publish and distribute games on the Internet, including peer-to-peer networks, portals, arcade providers, and guerilla campaigns. In other words, what technology and techniques are most effective for marketing and selling games to a worldwide audience, without a corporate-sized budget? Panelists include PC and web game developers with (traditional) publishing deals and those that self-publish, alongside representatives from the distribution and technology sides of the equation. Case studies provide strategy and outcome specifics including the what, where, how, and the all-important how much?

Takeaway: Attendees leave with an overall picture of available Internet distribution methods for self-publishing PC and web games, and an idea of which tactics might be most effective for their own needs. The information provided helps them make informed marketing and publishing decisions for their next game and may even generate previously untapped revenue streams.

Intended Audience/Prerequisite: This session is intended for independent developers of PC and web games. No prerequisite knowledge is required.

Panel – Advanced

A Review of Funding Models for the Independent Developer and Their Implications

Jeff Hilbert, Bruce Poitevan, Kathy Schoback, Jonathan Strause *See pages 114-148 for bios*
Saturday, March 8 • 4-5pm
Almaden Ballroom, Hilton

This session reviews the various funding models available to independent developers, including:

- Completion bond funding
- Self-funding
- Traditional publisher funding
- Venture capital
- Angel funding
- Other funding options

This is not a theoretical discussion but is based on actual case studies of projects implemented by the panel with developers, publishers, and third-party funding sources highlighting the positives and negatives of each solution.

The presentation covers specific factors publishers and funding sources require for the various options.

Takeaway: Attendees gain an understanding of the funding options available and royalty rates to expect from each option and an understanding of the risk options associated with each option. Attendees also learn about intellectual property issues associated with various funding options and what to expect and demand for future publisher negotiations.

Intended Audience/Prerequisite: This presentation is only for established developers who would like to explore all options before signing the next deal or would like to gain control over their development options.

Panel – All

Show Me the Money! Revenue Models for Massively Multiplayer Online Games

Scott Brown, Chris Early, Toby Simpson, John Smedley
See pages 114-148 for bios
Thursday, March 6 • 11:30am-12:30pm
B2, Convention Center

The question is no longer whether there is money in online games; the question now is how do you get it? IDC projects that online game annual revenues will grow to over $1.8 billion in 2005, representing a five-year compound annual growth rate of 71.6 percent. DFC Intelligence forecasts that 114 million people worldwide will be playing online games by the year 2006.

With all of this revenue and all of these players, how do publishers and developers ensure their players produce the most revenue possible for their gameplay? As more massively multiplayer online games enter the market, competition will exist not just in content but also in how players pay for their gaming experience. The panel discussion focuses on the current landscape of massively multiplayer online game revenue models for both PC and console platforms, and where they should be going in the next five years and beyond. The discussion includes purchase and post-purchase revenue models and their relative successes and failures. There will be some moderator-guided questions and ample time for audience questions.

Takeaway: Attendees understand the various revenue models for MMOGs in use today and planned for the future, with a focus on the pros and cons and the successes or failures of each model, plus what common mistakes have been made and how to avoid them.

Intended Audience: This session is intended for those involved in determining how to generate revenue from MMOGs, and for anyone designing or developing a game who is interested in generating post-purchase revenue.

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Surviving the Publisher Due Diligence Visit

Paul Hellier *See page 126 for bio*
Thursday, March 6 • 10:15-11:15am
C4, Convention Center

Whether you are just starting out or are a fully-fledged

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development house, at some point in time you'll be faced with the publisher sending out an advance party. Getting the meeting with a publisher is hard enough, but how do you get the publishers' interest to sign your project? What should you do to prepare for the meeting? This session will concentrate on what the publisher is looking for, what might improve your chances of a second look and why we're both going to be exhausted at the end of the day.

Takeaway: Attendees gain insight on key aspects of presenting to a publisher as well as how to influence the decision-making and funding process.

Lecture - Intermediate

10 Great Reasons You Don't Want to Make a Massively Multiplayer Game

Gordon Walton *See page 147 for bio*
Thursday, March 6 • 10:15-11:15am
B2, Convention Center

With over 100 massively multiplayer games in production right now and more on the way, this session gives the audience 10 great business reasons not to even attempt building one. The lecture also presents as a contrast the 10 corresponding business reasons people should be compelled to build one of these games. Prepare for some humor, with a dash of learned cynicism.

Takeaway: Why developers should (or shouldn't) be making an online game. If they are making an online game, developers learn what pitfalls to avoid to increase the chances of success.

Intended Audience/Prerequisite: Those familiar with game development and business models who are casually to completely familiar with online game development and business models.

Sponsored by Premier Press

The Trials and Tribulations of Running a Value Game Company

Andre LaMothe *See page 130 for bio*
Thursday, March 6 • 3-4pm
C1, Convention Center

This presentation addresses the business behind running a small independent game company and the realities of running a profitable business. Issues such as publishing, distribution, developer relations, legal, and strategic considerations are to be discussed. Additional topics covered include the rise and fall of the value gaming market, the precipitation of events leading up to it, and where to go now as value/casual developers.

Takeaway: This session covers what to expect when developing games for the casual market and what to watch out for.

Intended Audience/Prerequisite: This session is for developers who are interested in publishing and licensing value/casual. No prerequisites.

Lecture – Beginner

U.S. Immigration Issues for Game Developers

Howard Shapiro *See page 143 for bio*
Friday, March 7 • 12-1pm
A2, Convention Center

The U.S. immigration system presents a maze of acronyms, conflicting information, and technical jargon that can be very difficult for a game developer from outside of the U.S. and his or her potential U.S. employer to navigate. This presentation demystifies the temporary visa process and the process to obtain a green card.

Takeaway: Attendees learn the key qualifications that allow foreign talent to obtain work visas in the U.S. and the necessary procedures for these visas.

Intended Audience: Game developers from outside of the U.S., as well as human resources personnel and managers who seek to hire foreign talent, will benefit from this presentation.

Panel – Intermediate

What It Takes to Run a Successful Game Studio

Todd Hollenshead, Geoff Keighley, Ron Moravek, John Schappert
See pages 114-148 for bios
Saturday, March 8 • 10:30-11:30am
Almaden Ballroom, Hilton

Game budgets are skyrocketing. It's hard to retain your best talent. Publishers want developers with proven track records. If you didn't know any better, you'd think it was almost impossible to start and run a successful game studio. But every year, new studios break through the clutter and become first-rate development houses. How do they do it? Find out on this panel, as some of the most successful game studios in the world talk about the secrets to their success. What does it take to build a truly world class game developer? And once you get there, how do you maintain your leadership position? On the flip side of the coin, hear executives from major publishers discuss their war stories from working with game studios, both independent and wholly-owned subsidiaries. What are the telltale signs of a well-managed game studio? This panel helps you put your finger on the mysterious alchemy that makes a good game developer into a blockbuster studio.

Panel – Intermediate

When the Site Hits the Fan: Wrangling Community Fan Sites

Elonka Dunin, Darren Futa, Jeff Gatlin, Michael Perry
See pages 114-148 for bios
Thursday, March 6 • 4:30-5:30pm
B2, Convention Center

Fan sites. They're a source of amazement sometimes, as game developers watch the enormous amount of effort and creativity that a fan can pour into a web site that's about the game they play. Fan sites can range in quality from simple, one-page "This is the game I like to play" sites to elaborate, thousand-page searchable databases about every detail of a game. It's not uncommon to see fan sites that have original artwork and design that rivals or even surpasses the work that was put into the game itself. And all of this is done for free, by hobbyists who are doing it for the love of it, and not for pay.

This panel has representatives from two major game companies, Simutronics and Maxis, who talk about their experiences in dealing with fan sites, and offer tips on how other game developers can leverage their own fan site communities in order to increase customer retention, satisfaction, and even promotional opportunities.

Elonka Dunin of Simutronics, who has been working with multiplayer games since 1990, and dealing with fan web sites since 1997, discusses the database system that Simutronics has created for dealing with fan sites on their Play.net service, and the expectations that Simutronics places on fan site webmasters, such as how they are expected to link to the Simutronics games from their web pages, and how copyrights and trademarks are to be dealt with.

Michael Perry of Maxis talks about the database that they created for dealing with fans of the Sims games, including types of systems they put in place to allow players to rate and exchange game content with other players.

Elonka and Michael also discuss the common problems that have come up for

their respective companies in dealing with fan sites, and their different techniques for resolving them.

Takeaway: Takeaway includes data on how two major game companies deal with their respective fan site communities, including ideas about how much support to offer to a fan site community and techniques for dealing with certain types of problems that emerge when dealing with fan sites.

Intended Audience: This panel is intended for beginners to community management, or existing online community managers who may want to pick up tips on how to manage a community fan base.

Roundtable – All

When Starbucks Is Your Office: How to Consult in the Game Industry

Mitzi McGilvray *See page 136 for bio*
Thursday, March 6 • 10:15-11:15am
E, Convention Center
Friday, March 7 • 12-1pm
E, Convention Center
Saturday, March 8 • 9-10am
E, Convention Center

There are two types of consultants: those who consult because they have chosen to and those who consult because they have to. This roundtable is geared toward those who choose to make consulting their career.

This open roundtable is a forum for current and future consultants to meet like-minded individuals and participate in an open discussion about how to get the most out of your consulting career.

Topics include:

- Marketing yourself
- Creative ways to find your next gig
- Effective networking
- 10 ways to get your name known
- Writing an effective proposal
- Getting work done
- Being part of a distributed team
- How to turn Starbucks into a meeting room
- Effective consulting
- How to cut costs when you're paying the bill
- Financial and legal issues
- Comparing W-2 vs. 1099
- Does it make sense to incorporate?
- What types of contracts can you expect?
- How to protect yourself

Takeaway: Individuals are expected to walk away with a better idea of how to get the most out of their consulting careers. This includes how to find more work and how to get the most out of the work they are doing.

Intended Audience/Prerequisite: This roundtable is an open but guided discussion about consulting in the game industry. It is open to all who are currently working as industry consultants and those who are exploring this option.

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game design keynote

Keynote
Sequels and Adaptations: Design Innovation in a Risk-Averse World

Warren Spector
Thursday, March 6 • 4:30-5:30pm
A3, Convention Center

With sequels and franchises dominating the sales charts and uppermost in publishers' minds, how do developers balance their desire to create interesting, innovative games with their own and their publisher's need to maximize the chances of success while minimizing risk? This talk will focus on specific strategies developers can use to achieve personal and business goals while thinking INSIDE the box (often someone ELSE'S box!), rather than outside it.

Some of the issues to be addressed include:

- Strategies for carving out creative spaces in a sequel to your own or someone else's successful game.
- Tactics for satisfying your creative urges when your audience just wants "more of the same."
- Thoughts on building a sequel team and how that team should differ from a team working on a ground-up original title.
- Ways to manage studio portfolios to balance risky projects and proven money-makers.
- Lessons to be learned from movies, television and books—media that thrive on sequels in much the same ways we do.

Takeaway: There is hope. It IS possible to balance dollars and cents issues with design challenges and opportunities. Attendees leave with some concrete ideas about how to innovate and push the limits of our craft while working within constraints imposed by market forces and/or the needs of publishers.

Intended Audience/Prerequisite: Developers stuck in sequel or franchise hell after releasing a successful original, developers stuck in sequel or franchise-extension hell as they try to establish enough of a reputation to get a publisher to fund an original title, publishers interested in an insight into the minds of developers stuck in sequel or franchise hell.

Warren Spector
Warren Spector joined ORIGIN Systems in 1989 where he co-produced Ultima VI and Wing Commander. Over the next seven years, he produced Ultima Underworld, Ultima Underworld 2, Ultima VII: Serpent Isle, System Shock, Wings of Glory, Crusader: No Remorse, Cybermage: Darklight Awakening, Bad Blood, Martian Dreams and others. In 1997, after a year with LookingGlass Technologies as producer of Thief: The Dark Project and general manager of the Austin office, Warren founded the Austin studio of Ion Storm. Two years later he became partner and joined Ion's board of directors. Warren was project director and producer on the award-winning game, Deus Ex. As studio director and executive producer on all titles developed at Ion Storm he oversaw the March 2002 release of Deux Ex: The Conspiracy on PlayStation 2. Deux Ex 2: Invisible War and Thief III are both scheduled for release on multiple platforms in 2003. From 2000 to 2002, Warren was elected to the board of directors of the International Game Developers Association. He is currently co-chair of the IGDA Education Committee.

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Peter Shirley

July 2002; ISBN 1-56881-124-1
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Marc Olano, John C. Hart, Wolfgang Heidrich, Michael McCool

July 2002; ISBN 1-56881-180-2
Hardcover; 368 pp; $49.95

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eatured speaker at Game Developer's Conference 2003

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Perry R. Cook

July 2002; ISBN 1-56881-168-3
Paperback; 288 pp; $39.00

This book investigates the physics and mathematics of creating real world sounds for use in interactive digital settings. An enclosed CD follows along with the text, allowing readers to listen to the guitar strings, African drums, and squeaky doors that Cook models. Code examples are also provided.

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game design track

Creating new gameplay experiences requires understanding, visualizing, demonstrating, and tuning the interactions of an ever-increasing number of game tools and systems. Game designers need to exploit the possibilities of technology and master the traditional disciplines of drama, gameplay, and psychology. The Game Design Track looks at the opportunities created by the interaction between emerging technologies and established techniques.

Roundtable – All

Advanced User Interface Design

Jim York *See page 148 for bio*
Thursday, March 6 • 3-4pm
Santa Clara II, Hilton
Saturday, March 8 • 10:30-11:30am
Santa Clara II, Hilton

It is very easy to distinguish a bad interface design from a good one, but extremely difficult to define how to build a good human interface. This roundtable focuses on techniques, war stories, and upcoming trends in human interface design. Topics include simplicity, user customization, user feedback mechanisms, iterative interface testing during development, and how best practices in these fields differ between PC and console game development.

Takeaway: Attendees leave this roundtable with a greater understanding of the current trends in user interface design and implementation, including what others have already tried and where we're going in the future.

Intended Audience: This session is designed for anybody working on human interface design and implementation, whether they are programmers, artists, designers, or user testers.

Lecture – Intermediate

Bossy Behavior: Patterns and Techniques in Boss Design

Luis Barriga *See page 115 for bio*
Friday, March 7 • 4:30-5:30pm
J3, Convention Center

The boss at the end of the level is a staple of video and computer games across the spectrum of genres. However, bosses manage to stay under the radar of many of us in the field until we actually are confronted with the task of designing, programming, or giving input on a particular boss.

This lecture takes a look at patterns in boss design and presents several useful, time-proven techniques for creating compelling boss gameplay. Examples from the shooter, brawler, action, and RPG genres are discussed and analyzed. Gameplay aspects such as environment interaction, vulnerability-based patterns, progression, player confinement, and camera control are talked about in detail.

Takeaway: This presentation offers a didactical analysis of the mechanics of boss behavior. Attendees gain a good understanding of what constitutes effective boss design and which boss designs better match different games and genres.

Lecture – Intermediate

Breaking the Rules of a Game

Katie Salen & Eric Zimmerman *See pages 142, 148 for bios*
Friday, March 7 • 10:30-11:30am
A4, Convention Center

Playing a game means following the rules. But in almost every game ever designed, breaking the rules is also part of the play. From Monopoly "home rules" to the mods, cheats, and hacks of digital gaming, part of playing a game involves bending, tweaking, and breaking the authority of the game rules.

What does this mean for game designers? Should game designers be discouraging rule breaking among players? Or should they incorporate rule breaking into their game designs? What does the phenomenon of rule breaking have to teach us about how games work? If a game rule can be broken, is it still a rule?

These and other questions regarding rule breaking and game design are addressed in this lecture. The goal of the session is to better understand what game rules are, how rules are broken by players, and how rule breaking affects game design. Rule breaking comes in many forms, and not every form of rule breaking is bad for a game. How can game designers embrace rule breaking as a formal, social, and cultural strategy for game innovation?

Takeaway: Rule breaking is a simple fact of games, and game designers would be well served to better understand it. This session explains the common types of rule breaking on different game platforms and the kinds of players that break rules. Rule breaking can be good or bad for a game design, and this session covers concrete strategies both for avoiding destructive rule breaking and for encouraging rule breaking when it helps build a game community or more engaging experiences for players.

Intended Audience/Prerequisite: This session is intended for experienced game designers working on any game platform. No prerequisite knowledge is required.

Roundtable – All

Children's Software: Past, Present, and Future

Ken Kahn *See page 128 for bio*
Thursday, March 6 • 11:30am-12:30pm
Santa Clara II, Hilton
Friday, March 7 • 4:30-5:30pm
Santa Clara I, Hilton
Saturday, March 8 • 9-10am
Santa Clara I, Hilton

The roundtable discusses children's software. What have been the significant advances in software for children? What is the current state of the art in the design of children's software? What will children's software be like in the near

game design track

and far future? Will new hardware change the nature of software for children? Should software be designed specifically for children, or should we strive for software that appeals to both children and adults? If we do design software specifically for children, should we specialize the software for narrow age ranges, or a single gender? Finally, where, if at all, does software made by children fit into the big picture?

Takeaway: Participating in the roundtable offers a chance to exchange ideas about children's software. By discussing the past, present, and future of children's software, we will all learn something and have a better picture of the future.

Intended Audience/Prerequisite: Anyone interested in either games or educational software for children. The interest can be from a designer, programmer, artist, business, educator, or psychological point of view. No prerequisites are required.

Roundtable – Beginner

Child's Play! How to Use Play-Testing to Develop Better Games

Tobi Saulnier *See page 142 for bio*
Thursday, March 6 • 9-10am
Pacific, Hilton
Friday, March 7 • 12-1pm
Santa Clara II, Hilton
Saturday, March 8 • 12-1pm
Plaza, Hilton

Want to know whether your game is fun? Bring in some kids and watch them play it. Kid testing is an important tool for game designers as the demographics for videogames expand well beyond the core group of people making games. Although publishers and QA groups do play-testing and focus groups, the impact and potential benefit is huge when a developer brings these tools in-house. Designers need direct, firsthand observation of how the intended demographic plays games in order to make appropriate design decisions and trade-offs. This session provides a forum to share how designers have organized play-testing for their games, and what can be done to learn even more from this technique. Case studies include Crash Bandicoot and Frogger GBA, and templates are provided to help get attendees started.

Intended Audience: Anyone who finds themselves designing and developing games for an audience other than themselves, or has experience with organizing or using different forms of play-testing as a game developer.

Panel – Beginner

Casual Games Panel

Steve Meretzky, Dave Rohrl, John Vechey
See pages 114-148 for bios
Saturday, March 8• 10:30-11:30am
J1, Convention Center

Casual games are generally given a short shrift, even though far more people play casual games than hardcore games. (According to the most recent survey by Jupiter Media Metrix, nine of the 10 most-played PC games were casual games, with only The Sims cracking the top 10.) But we hear the same old refrain: "Sure, more people play casual games, but there's no money in them."

This panel, made up of industry veterans with experience on both sides of the fence, examines the difference between the two types of games, and the two types of gamers. The panelists examine what makes a successful casual game and details the many avenues in which companies are making casual games into an often extremely successful business.

Takeaway: Attendees learn the essential design criteria for a casual game. Attendees take away the profile of the casual gamer and are given a survey of the economically viable avenues for making money on casual games.

Intended Audience/Prerequisite: This panel is for people with ideas for casual games who have been told that there's no market for that type of game. There is no prerequisite knowledge for attending this session.

Lecture – Intermediate

Creating a Cinematic Game Experience

Rick Giolito
Thursday, March 6 • 11:30am-12:30pm
J3, Convention Center

Videogames are not movies; the addition of interactivity robs game developers of many of the tools used to create emotion and atmosphere on film. But achieving a cinematic look and feel is still a worthwhile ambition. By evoking the look and feel of a feature film, developers can tap into a language well known to the player and greatly increase the emotional resonance of the game experience. Rick Giolitto shares some of the techniques used to bring the visceral, big-screen feeling of *Saving Private Ryan* to life as an interactive game in Medal of Honor Frontline.

Lecture – Intermediate

Creating the Worlds of Dungeon Siege

Sarah Boulian *See page 116 for bio*
Saturday, March 8 • 12-1pm
A7, Convention Center

After playing for just a few hours through one of Dungeon Siege's vast worlds, the player expects a seamless experience through lush environments populated with an unending stream of monsters to annihilate. Getting to this point was not a straightforward process, and the worlds were rebuilt numerous times after one feature or another was rethought. The goal was clear: we wanted to create a game experience that grabbed players' attention from the opening scene and never gave them an opportunity to turn the computer off until they had conquered the final boss. Add to that a lush and organic look, plenty of vertical drops, a wide variety of interactive content, and a journey from farmers' fields to frigid mountaintops to the fiery depths of the land and back again, and we discovered that the development process was anything but simple. Finally, we wanted to offer players two huge, hand-crafted worlds to explore: one with a more linear progression and a focus on the single-player experience, and a second with a wide-open feel for multiplayer.

This is a view into how we created the worlds of Dungeon Siege, with a focus on the engine technologies that defined the type of experience we could build, how we worked within the boundaries we were given, challenges we met, and unexpected features we discovered. This lecture covers a little of everything: design mandates, technical allowances, tool features, art creation, and how the level designers brought it all together.

Takeaway: Attendees learn about some of the high-level factors that defined Dungeon Siege and the development team's challenges in building the game worlds. They learn how the terrain engine, master design, level-editing tools, and artistic direction contributed to the worlds that could be built, and the effect that had on the level design process.

Roundtable – Beginner

Could Retro Arcade Classics Kill Wireless Gaming?

Glenn Broadway *See page 116 for bio*
Thursday, March 6 • 3-4pm
D, Convention Center
Friday, March 7 • 9-10am
Pacific, Hilton
Saturday, March 8 • 2:30-3:30pm
Santa Clara II, Hilton

game design track

The wireless device as a gaming platform presents developers with limitations and constraints akin to those found in early 8-bit computers and consoles. It's easy to understand why designers are drawn back to that era when presented with the challenge of creating content for the medium. But were the classic games of the 1980s really the pinnacle of what could be achieved? And more importantly, are they the kinds of games we should be bringing to the wireless arena? One thing is certain, ported verbatim they will all fail to harness the singularly outstanding feature of the medium: ubiquitous connectivity.

You look at Asteroids through rose-tinted spectacles, reminded of halcyon days in seafront arcades. A 15-year-old with a $300 Nokia sees stick-man boulders and a triangle spaceship.

Takeaway: This session broadens your view of what the wireless gaming platform is capable of. Many developers look at the medium from a purely technical viewpoint, taking little notice of the importance of player's social habits or ubiquitous connectivity.

Intended Audience/Prerequisite: No particular prerequisite knowledge or expertise is required from attendees. Wireless gaming brings this issue to the fore, but it is a point that all developers should consider carefully.

Lecture – Intermediate

Deathmatch: Ted Price vs. Jason Rubin

Ted Price & Jason Rubin *See pages 141, 142 for bios*
Thursday, March 6 • 11:30am-12:30pm
A2, Convention Center

Finally, at one time, under one roof, Ted Price of Insomniac Games, creators of the Spyro the Dragon Series and the recent hit Ratchet & Clank, and Jason Rubin of Naughty Dog, creators of the Crash Bandicoot series and the more recent Jak & Daxter: The Precursor Legacy, take the gloves off to tell us how they really feel about the other guy's products. Together, Insomniac Games and Naughty Dog are responsible for sales of over 32 million units of nine products in eight years, have co-dominated the character-action genre on the PlayStation platforms, and their latest products have received both critical and popular acclaim. The two companies are simultaneously the closest of friends, with a technology- and engine-sharing arrangement, and each other's greatest competitor, going head to head in the same genre, targeting the same audience. Both will be asked what they like, and dislike, about the other's titles, and about similarities and differences in their development process. Spectators gain a valuable insight into the style and methodologies of Ted and Jason, and the development houses that they run. Scheduled for 15 rounds. Let's get ready to rumble!

Lecture – Intermediate

Designing a Ratchet & Clank Level

Brian Allgeier *See page 114 for bio*
Friday, March 7 • 10:30-11:30am
B2, Convention Center

So you have a great level idea, but how do you bring it to life? Many designers find that once their level is created, it does not nearly live up to what was described in the design document. Due to compromises, deadlines, and unproven game mechanics, a level may no longer resemble what was originally envisioned. Creating an ambitious yet realistic design requires a strong sensibility on how it impacts the various team members, and how each one of them will make it shine. Guiding a design through production is an arduous task requiring perseverance, flexibility, and strong diplomatic skills. Even after completion, when the level appears to be a success, focus tests and feedback can lead to additional re-tuning and at times major design changes. This lecture describes the development of levels for Ratchet & Clank, how they were designed, created, and tuned. A designer's walkthrough of three levels will be discussed including how various levels hit their mark, became hard lessons, or surpassed what was originally conceived. The lecture also stresses the importance of preproduction tools and play-testing.

Lecture – Intermediate

Designing Original Games Based on Licensed Properties

Chris Charla *See page 117 for bio*
Saturday, March 8 • 9-10am
J3, Convention Center

As the game industry grows more mass-market we have seen an explosion of licensed games, especially on Gameboy Advance. Creating licensed games doesn't have to mean turning *My Dinner with Andre* into a side-scrolling shooter. This lecture explores ways to innovate within the limitations of a license, as well as ways to make sure you keep the license holder happy, while delivering a game that's fun to the kids.

Takeaway: Attendees learn several strategies for developing compelling, original game ideas while working within the constraints of a license. They also hear and enjoy both positive case studies and licensed game horror stories, which should enable them to glean more information relevant to their current and future projects.

Intended Audience: The intended audience is designers and would-be designers of games based on licensed properties, especially for handheld systems.

Lecture – Beginner

Designing Power-Ups for Action Games

Randy Smith *See page 143 for bio*
Friday, March 7 • 12-1pm
J3, Convention Center

Power-ups: they're more than just health boosts and ammo packs. The most memorable power-ups open up the game's boundaries, extend the appeal of core gameplay, and keep the player captivated. Effective design of power-ups can make a good game into a great game. But what are power-ups, really? Why do we have them in games? How many should your game have, what should they do, how should they work? Where do power-up ideas come from, how should you evaluate them, how should you document them? What is there to consider when you want to make good power-up ideas better?

This presentation deconstructs power-ups and talks about the designer's role in the development process from brainstorming to documenting power-up ideas. Vocabulary

game design track

and analytical tools are introduced and design trade-offs are discussed. A process for evaluating and refining power-up ideas is presented, as is a document template useful for turning ideas into formal design specs. The focus is designing power-ups that are a good match to the needs of your game and having an effective approach to the development process. Illustrative examples from classic and modern action games are used throughout.

Takeaway: Attendees are introduced to analytical tools and vocabulary that can be used to communicate, evaluate, and refine their power-up design ideas. Attendees are presented with an iterative development process for designing power-ups and a document template for formalizing their ideas. Furthermore, processes and analytical tools similar to the ones presented can be used to develop other game design material, such as enemies and missions.

Intended Audience: This presentation targets beginning designers who are developing power-ups for action games, but much of the material is also applicable to other genres, advanced designers, and other design problems.

Lecture – Intermediate

DYNAMICS FOR DESIGNERS

Will Wright *See page 148 for bio*
Friday, March 7 • 3-4pm
A3, Convention Center

Somewhere between high-level game concepts and low-level coding lies a region of design that's really at the core of the interactive medium. In this part of the forest we find that causal relationships, feedback cycles, information propagation, and emergence mechanisms reign supreme. This is what I call dynamics, the rules and principles that govern the way in which structures change through time. A new language is emerging here, and we are just now getting to the point where we can really use it to increase our effectiveness as designers. I hope to show how we can develop an intuitive "feel" for these dynamics and use them not as a recipe for design, but rather as a spice. The design and use of early prototypes will be covered as a means to explore and sculpt a variety of dynamic systems. Also, the use of dynamic literacy as a middle ground or "shared language" between programmers and designers will be emphasized.

Lecture – Intermediate

EPISODIC CONTENT: HERE, NOW, AND NEXT MONTH TOO

Chris Foster & Ken Troop
See pages 122, 145 for bios
Saturday, March 8 • 9-10am
J2, Convention Center

As we move into the era of broadband-fueled online entertainment, developers look toward the promise of episodic content: dynamic enhancement of games through automatically downloaded updates. One massively multiplayer game, Turbine's ASHERON'S CALL, fulfills the promise of episodic content on a monthly basis. This lecture explores building and rebuilding truly dynamic games and game worlds. What tools, teamwork, and testing are needed? In an MMP world, how do you weigh the development of serial narrative against game balance and enhancements? How do you integrate your stories with those the community writes for itself? Issues are illustrated with anecdotes from planning and shipping AC's monthly updates. Discussion time helps us illuminate the challenges and potential of episodic gaming across all genres.

Takeaway: Numerous anecdotes "from the trenches" illustrate common challenges of creating episodic content. Evolving an online world is presented as an equal mix of savvy, premeditated technical decisions, and constant, creative tap-dancing. We're learning how much more there is to learn.

Intended Audience: This lecture is best suited to designers and planners of upcoming online games, particularly massively multiplayer or persistent-state worlds.

Lecture – All

EXPERIMENTAL GAMEPLAY WORKSHOP

Jonathan Blow *See page 115 for bio*
Friday, March 7 • 4:30-6:30pm
A7, Convention Center

Traditional art forms like music, film and literature have established mechanisms for encouraging experimental works, and for bringing these new ideas into the mainstream creative process. These mechanisms prevent an art form from iterating endlessly on proven successes and ultimately stagnating creatively. The Experimental Gameplay Workshop aims to: provide a platform for game designers to showcase risky new work and discuss it with their peers, legitimize gameplay research, and foster a community of experimental game designers. The gathering consists of several presentations by experimental game authors, followed by peer discussion. Presentations are formal 20-minute sessions where an experimenter demonstrates a game and gives a short lecture about the game's experimental aspects. Each presentation will focus on the new gameplay, tradeoffs made to achieve it, difficulties overcome, and problems remaining in the design. A short discussion session and Q&A follow each presentation.

Lecture - All

EXPLORING THE FRINGES: INTERACTIVE ENTERTAINMENT FOR THE 21ST CENTURY

Ernest W. Adams *See page 114 for bio*
Saturday, March 8 • 4-5pm
A7, Convention Center

The game industry does an excellent job at reaching its traditional market with its traditional products, as its continuing growth attests. The industry is less efficient, however, at seeking out new creative opportunities for interactive entertainment. Most developers are too busy with their current projects, and without a clear financial incentive, most publishers aren't interested.

This lecture conducts a survey of the fringes of interactive entertainment, the areas that many developers don't have the time or incentive to study now, but that may be the keys to our future. Adams looks at such diverse endeavors as the formal art world (particularly as seen at Ars Electronica, the oldest and most prestigious exhibition of electronic art in the world); the machinima movement; the demo scene; the interactive fiction movement; text MUDs and MUSHes; and the use of computer games for subversive or political ends, as in the case of VELVET-STRIKE. By exploring the fringes of interactive entertainment, this session hopes to identify concepts and techniques that are creatively useful to a new century of interactive entertainment.

Takeaway: What happens when interactive entertainment isn't about selling units at Wal-Mart? When gamers seize control of games for their own ends? Attendees hear about the political, social, psychological, and aesthetic activity on the fringes of gaming.

Intended Audience/Prerequisite: No prerequisites other than familiarity with the current state of the game industry and game design are required. The intended audience is anyone interested in breaking out of our traditional genres.

game design track

Lecture – Intermediate

FilmGame: Adapting *Lord of the Rings*

Neil Young *See page 148 for bio*
Friday, March 7 • 10:30-11:30am
J3, Convention Center

In much the same way that Stephen Spielberg adapted Peter Benchley's *Jaws* for film or Francis Ford Coppolla brought Mario Puzo's *Godfather* to the big screen, game makers can now look beyond the boundaries of creating simple derivative works as an extension of a film's merchandising program and begin to adapt film works to our medium.

As the capabilities of the platforms for which we create our works continue to increase, so too does the relevancy to our medium of the human, audio/visual, and technical assets used in the creation of a feature film. Game makers need to form new, close collaborations with filmmakers in order to adapt these works effectively for our medium to create works as memorable and impactful in our medium as their feature film counterparts strive to be. As we move into the late lifecycle of the current crop of consoles, bringing works from this medium to ours is becoming increasingly relevant to developers and publishers alike.

Using Peter Jackson's film versions of *Lord of the Rings* as a working example, this lecture discusses in detail working with the filmmakers in New Zealand, the actors, and the distributor to leverage, repurpose, and in some cases re-create the assets that were used to create the film in the making of the games.

Roundtable – Intermediate

Game Designers and Development Teams

David Wessman *See page 147 for bio*
Thursday, March 6 • 11:30am-12:30pm
Pacific, Hilton
Friday, March 7 • 4:30-5:30pm
Pacific, Hilton
Saturday, March 8 • 10:30-11:30am
D, Convention Center

This session explores how game designers fit into the development team. We discuss the working relationships between game designers and artists, programmers, audio designers, testers, marketing, the publisher, and so on. Specific topics include:

- Who "owns" the design?
- Whose "vision" are you trying to realize?
- What motivates the individual versus what motivates the team
- Understanding the technology: working within the limits or pushing them?
- Getting the assets you need when your design depends on others for implementation
- As an iterative process, how can game design be done as efficiently as possible?
- What about tools? It's been said that the better the tools, the better the game, but why?
- Overcoming egos (your own and everyone else's)

Lecture – Intermediate

Game Design Methods of Ico

Kenji Kaido & Fumito Ueda *See pages 128, 145 for bios*
Thursday, March 6 • 3-4pm
J2, Convention Center

Strikingly original titles don't happen by accident. Ico's creators set out with a deliberate plan to make a game that would instantly differentiate itself from other title: they wanted to create graphics that were beautiful, not just pretty, by paying attention to detail, density, and reality. Throughout production, the developers employed careful cost/benefit analysis and a "minus design" philosophy to keep the vision from overwhelming the game. In this session, the Ico team speaks about the many unique features of Ico and the decision-making and planning process that led to them.

Lecture – All

Game Design Patterns

Staffan Björk, Jussi Holopainen, Bernd Kreimeier
See pages 114-148 for bios
Thursday, March 6 • 9-11am
J3, Convention Center

There is consensus in parts of the game design community that developing semi-formal and formal game design methods would serve us well: we have to advance the way we discuss game design. This double-hour session introduces methods based on the Alexandrian notion of design patterns. Patterns have been applied to problem domains such as architecture and software engineering, and Christopher Alexander's work has been referenced in discussions of level design and level architecture.

The speakers present methods that employ game design patterns as a tool to analyze, document, and discuss game design techniques and recurring game elements. Making recurring design devices explicit is a powerful means to aid and organize the development process, enabling designers to expand the conceptual space in which they plan and evaluate. Patterns can also be used in a normative way comparable to the rules of the "400 Project," yet patterns address competing design imperatives explicitly.

The lecture focuses on practical use and includes workshop-like elements. Patterns, like any formal method, are only useful as long as reasonable effort suffices to acquire and apply the technique, and as long as the application can be tailored to project-specific needs. Individual patterns and small pattern collections will be discussed foremost as examples. No attempt at defining a "canonical pattern language" is intended. The large variety of game genres, and within each genre, of game design objectives, make it difficult, and possibly counterproductive, to attempt to impose comprehensive pattern collection, especially as patterns can turn out to be very specific to the given project or the individuals involved.

Takeaway: Attendees learn how to recognize and harvest patterns, how to define and refine them for documentation, and how to apply them. The goal is to hand designers another tool to evaluate and communicate within a team in the course of their day-to-day design work.

game design track

Intended Audience/Prerequisite: Beginner, intermediate, and advanced game designers can benefit. Participants should be interested in formal analysis. Previous knowledge of design patterns helpful but not required.

Lecture – Intermediate

HALO: DEVELOPMENT EVOLVED

Jaime Griesemer, Mat Noguchi, Marty O'Donnell
See pagepages 114-148 for bios
Friday, March 7 • 4:30-5:30pm
A3, Convention Center

This lecture explores how HALO was developed, assembled, and polished from three different perspectives: the design side, the engineering side, and the audio side. Each discipline has a unique insight into how the game should play, and we will discuss how the process enabled all of us to contribute to the final product. We'll explain how our early design documents and brainstorming sessions turned into actual content and technology that worked well together and made the game fun to play, deep, and presented with high production values. We'll look closely at systems such as AI dialogue that require a high level of coordination between level and character design, tools, and programming, and the casting and recording of actors. The importance of place-holders and play-testing before making and implementing final content is also discussed, as well as lessons learned along the way and how HALO 2 will strive to build on the successes of HALO 1.

Roundtable – All

HEROES IN THE 21ST CENTURY

John Feil *See page 122 for bio*
Thursday, March 6 • 11:30am-12:30pm
Santa Clara I, Hilton
Friday, March 7 • 12-1pm
D, Convention Center
Saturday, March 8 • 9:00-10:00am
Santa Clara II, Hilton

Today's computer games are obsessed with the hero. From Mario to Duke Nukem, from Lara Croft to Max Payne, games attempt to immerse the player in the role of the savior. In this roundtable, we discuss if players really want to be heroes, or if it is the game developer that is forcing the role upon the audience. We'll also talk about heroic actions in massively multiplayer games. Is there a way to recognize it? Should designers reward such behavior, or is the behavior reward enough?

Takeaway: Attendees come away with new thoughts about rewarding heroic actions. They'll have new ideas about what heroes are, and develop new opinions about using them in games.

Intended Audience/Prerequisite: Anyone interested in this subject is welcome to attend. No prerequisite knowledge is needed, just opinions.

Lecture – Intermediate

HOW TO MAKE YOUR GAME SUCCESSFUL IN JAPAN

Ryoichi Hasegawa & Tsurumi Roppyaku
See pages 126, 141 for bios
Thursday, March 6 • 10:15-11:15am
J2, Convention Center

With only a handful of exceptions, Western titles do not sell well in Japan. Even with Japanese experts managing the localization process, the odds of market success are very poor. Much of this has to do with the misconception that localization is a matter of translation; it is much, much more. Characters need to be modified, scripts need to be rewritten, and gameplay balance needs to be adjusted if a game will be successful in Japan.

The speakers have large experience with such complex localization, having helped bring the CRASH BANDICOOT series to Japan, where it is now the record-holder for sales of an American title. Using specific examples derived from their work on CRASH, and also from their work on SPYRO THE DRAGON, JAK & DAXTER, and RATCHET & CLANK, the speakers explain their techniques and discuss their relative degree of success in reaching the Japanese audience.

Lecture – Beginner

HOW TO WRITE GOOD "BAD DIALOGUE": CRAMMING STORYTELLING INTO AN ACTION GAME

Sean Clark & Ryan Kaufman
See pages 117, 128 for bios
Friday, March 7 • 12-1pm
J2, Convention Center

Cookie-cutter villains . . . bland action heroes . . . why are action games so boring sometimes? Who is this Joseph Campbell guy I hear the eggheads talking about, and what the heck is dialogue "punch-up" all about? Adventure-game and RPG characters have the luxury of many lines of dialogue to express their personalities, but action games and shooters often get the short shrift. Mission objectives and transitional cutscenes need to be short and to the point. But can you still depict unique and memorable characters within these constraints?

This lecture discusses strategies for writing good, interesting dialogue in action games as well as common writing mistakes and dead-ends committed by even the best games out there. Using examples from popular games, comic books, Hollywood action movies, and past *Star Wars* titles, we examine expository dialogue, character-building, one-liners, and other hyphenated writing trickery. Writing exercises are demonstrated to help game writers craft their characters, find a "voice" for each personality, and template out their dialogue for ease of reading. We also touch on the differences between writing an original game and writing for a licensed product.

Attendees learn how to identify and fix bad dialogue, and the difference between "good" bad dialogue and just plain bad dialogue. This lecture offers an insider's view of the challenges of creating action heroes with real personality and why stories don't always have to be about saving the galaxy.

Takeaway: Attendees learn to identify two-dimensional and uninteresting characters and use specific strategies to expand their notions of personality and compelling drama. They can apply editing techniques to dissect their own dialogue and enhance it using active verbs, punchy dialogue, and surprise twists. They leave with a better understanding of what it takes to create and keep afloat interesting characters and stories in the high seas of the action-game genre.

Intended Audience/Prerequisite: The lecture is intended for anyone interested in game writing, whether it be in-game dialogue or overall story crafting. Some previous knowledge of game development will be helpful, but not necessary.

Roundtable – Intermediate

THE JOYS AND PAINS OF DESIGNING LICENSED-BASED VIDEOGAMES

Luis Barriga *See page 115 for bio*
Thursday, March 6 • 9-10am
Santa Clara I, Hilton
Friday, March 7 • 9-10am
Santa Clara I, Hilton
Saturday, March 8 • 12-1pm
Pacific, Hilton

Nowadays we can expect almost every popular movie, TV show, sport, and even pop artist to be represented by some form of videogame rendition. Seldom do we stop to think about the brave men and women that pour their talent and creativity into making these titles (with varying degrees of quality). With a great and increasing

game design track

percentage of software titles having a license attached to them, chances are you have or soon will take part in such a product. Come share your stories, thoughts, ideas, and advice on creating licensed content. Key topics of discussion include: the pros and cons of inheriting existing content (backstory, character designs), creating gameplay that appropriately fits the license, and interacting with license providers.

Takeaway: This roundtable seeks to bring up some of the problems, complications, and solutions associated with this common project type. By talking to colleagues in similar situations, game designers attending this session walk away with a better understanding of the licensed game process. This roundtable also has the therapeutic benefit of bringing together designers who might or might not know how common their situation is.

Intended Audience: The intended participants for this roundtable are designers who often find themselves developing videogames based on licenses, be they movies, brands, or even other videogames.

Lecture – Intermediate

MAKING GAMES MORE FUN: METHODS FOR PLAY-TESTING GAMES

Bill Fulton & Michael Medlock *See pages 122, 136 for bios*
Thursday, March 6 • 3-4pm
J3, Convention Center

Many games simply aren't as fun as they could be or need to be in order to be successful. Often, the developers of the game are surprised (and dismayed) at how the game is received. The team thinks the game is more fun than the gaming press or public seem to find it. These discrepancies between the team's opinions and typical game player's opinions happen because human beings naturally get too close to their work to see the problems others will have.

Because of this discrepancy between the team and typical gamers, it is valuable to seek feedback from people outside of the game development process. While QA testing is the best first step to minimizing this problem, QA testers are part of the game development process and will also eventually get too close to the game. Furthermore, as professionals in the games industry, QA testers can also have a hard time knowing what the nonprofessional game player is able to do and likes doing.

This lecture goes into detail about user-testing methods, and methods for getting feedback from typical, not professional, gamers. The presentation also goes into detail about different user-testing methods for discovering problems in your game, and how to verify whether fixes to problems have actually succeeded. The methods discussed have been invaluable for improving games such as HALO, AGE OF EMPIRES 2, ZOO TYCOON, and DUNGEON SEIGE. Details on how to start doing testing like this for your own game are covered.

This presentation is a follow-up to the GDC 2002 talk: Getting Data That Improve Games: A Case Study of HALO.

Panel – Intermediate

OLD SCHOOL: ARCADE GAMES IN THE GOLDEN AGE

Mark Cerny, Eugene Jarvis, Ed Logg, Tim Skelly
See pages 114-148 for bios
Friday, March 7 • 9-10am
A4, Convention Center

Starting in the late 1970s, there was an unprecedented and never-repeated boom in the arcades. This Golden Age of the Arcade was unique, and not just because of the extreme originality of the games. The teams were very small, many times with just one person handling art, design, and programming. These largely unknown and uncredited individuals faced the challenges of short time schedules, truly primitive technology, and daunting project cancellation rates, and yet often succeeded in creating unforgettable play experiences. A panel of Golden Age creators, including those responsible for the some of the greatest all-time arcade hits, discuss the unique aspects of these times, and their relevance to game creation today.

Panel – Intermediate

ON ALL LEVELS

Dustin Browder, Jaime Griesemer, Tim Longo, Randy Smith, Matt Tateishi, Evan Wells
See pages 114-148 for bios
Friday, March 7 • 9-10am
B1, Convention Center

Level design, a further extension of many overall game design mentalities, may be able to be thought of as a more universal medium of development than it currently is. Just as its game design counterpart, there are likely many different aspects of the role a level designer plays that are shared with each and every game that requires them, despite the genre. What are the universal aspects of level design that transcend all genre categorizations, and how do they help us make a better level? Each expert on the panel comes from a different dominant game genre and shares their thoughts on a series of topics relating to the overall question.

Lecture – Intermediate

ORTHOGONAL UNIT DESIGN

Harvey Smith *See page 143 for bio*
Saturday, March 8 • 12:00pm-1:00pm
J3, Convention Center

Developers and players refer to game units by a number of names: Enemies, NPCs, monsters, AIs, creatures, and characters. What are they? Hurdles that must be overcome in order to reach the exit to the level? Simulated opponents that try to out-think the player? Artificial squad mates? Cool renders with interesting attack, fidget, and death animations? Collections of RPG stats? They're all of the above, but in an industry where game environments are mostly static, game units are dynamic elements with the potential to represent more. Across all game genres, it's possible to design game units that are distinct in the role they play, and by doing so create gameplay with greater accessibility and more depth.

If each game unit has a particular function (and if this function is obvious or can be observed over time) then the player can make informed decisions about how to deal with

game design track

each enemy tactically, which in and of itself becomes a gameplay dynamic. The alternative, in which all enemies do basic variations of the same thing—race forward and inflict damage—is less interesting, less strategic. Designing game units with distinct functions that work compatibly with the other elements in a game is a powerful means of creating compelling content without expensive new core tech systems or additional artwork. For instance, a first-person shooter with two monsters that simply charge forward firing bullets has fewer tactical gameplay ramifications than the same type of game with one monster who charges forward firing bullets and one who heals injured allies. Yet both represent roughly the same cost in terms of art and technology development time.

This lecture aids designers in creating game units that are more interesting because they serve a purpose within the game's larger scheme, convey their function to the player, and interact in interesting and often emergent ways with other game elements. This presentation covers several design techniques that are independent of game genre. It deconstructs various categories of game units utilizing examples from classic and modern games.

Lecture – Intermediate

PC to Console: Bringing Star Wars Jedi Knight II: Jedi Outcast to Xbox and Gamecube

Karthik Bala & Bret Dunham
See pages 114, 120 for bios
Friday, March 7 • 9-10am
A2, Convention Center

This session delves into the challenges of bringing a first-person shooter from PC to console. The case study for this topic will be Vicarious Visions' conversion of Star Wars Jedi Knight II: Jedi Outcast for PC to Xbox and Gamecube. Other FPS titles will also be used for comparison and to illustrate general techniques and pitfalls.

One of the most dominant genres on the PC is the first-person shooter. The mouse and keyboard is a perfect interface for this style of game. But how do you deliver a great gaming experience to console players when they are armed only with a standard console controller? How do you create an intuitive control scheme with far fewer buttons? How do you design it with two different consoles in mind? There are a multitude of design, control, and user interface challenges to overcome. In addition, there are numerous technical challenges such as memory limitations. How do you take a PC game that requires 128MB of RAM and fit it on a Gamecube with 24MB of main memory and still make it look good and run at a solid frame rate? The session will primarily cover controls and design issues, but will also include topics such as major technical hurdles, graphics, and content changes.

Takeaway: Attendees gain design techniques for developing a first-person shooter on console in addition to some solutions for major technical hurdles in bringing PC titles to console.

Intended Audience: This lecture targets experienced designers, artists, and programmers on both PC and consoles.

Panel – All

Profiling the Female Gamer: A Look at How She Buys and Plays

Mia Consalvo, Sheri Graner Ray, Clarinda Merripen, Sheri Pocilujko
See pages 114-148 for bios
Thursday, March 6 • 11:30am-12:30pm
A7, Convention Center

The main goal of this panel is to broaden the minds of those who want to reach the female market. Panelists bring their own expertise as well as scientific theory and statistical data. The focus is to go beyond the obvious turn-offs to women (big breasts, skimpy outfits, women as victims) to dissect the female psyche before, during, and after playing the game. The panel is broken down into four stages: preview, tutorial, gameplay, and numbers and dollars. This structure helps to intimately explore how the female player reacts at each stage of a game's life cycle.

Takeaway: The audience walks away with a new understanding of what marketing strategies attract a female player and the thought process behind the female player as she chooses, learns, and plays those games. The audience also walks away with a set of new ideas for how game designers and marketers could make their games more female-friendly.

Intended Audience: Anyone involved in game design, marketing, and business strategies, specifically those wanting to take the female market into consideration, can benefit.

Lecture – All

The Puzzlemaker's Survival Kit: Principles, Case Studies, and Design Process

Scott Kim *See page 130 for bio*
Saturday, March 8 • 2:30-3:30 pm
J3, Convention Center

From casual games to 3D action games, puzzles are an important part of many electronic games. Whether you are designing or producing games for the web, mobile phones, computer, arcade, or console games, you need to know how to create good puzzles. In this lecture, veteran puzzle designer Scott Kim explains the principles of puzzle design, shows a wide range of examples from both electronic and nonelectronic games, and describes the design process behind puzzle design.

Takeaway: See a wide variety of puzzles. Understand how different types of puzzles are related. Get ideas for varying and tuning puzzle types. Learn how to develop a puzzle from concept to finished product. Be inspired to create new types of puzzles.

Intended Audience: This talk is aimed at game designers and producers involved in games of all sorts that feature puzzles, including casual games, adventure games, educational games, and kids' games. There are no absolutes.

Lecture – Intermediate

Reputation Systems: Saving Your Service

Paul Sage *See page 142 for bio*
Saturday, March 8 • 4-5pm
B2, Convention Center

This lecture explores reputation systems in online communities, covering what a reputation system is, how to properly identify anti-social elements in the community, and how to identify design elements that contribute to anti-social behavior. During the presentation the speaker describes benefits of a reputation system in keeping customer service costs down and increasing the satisfaction levels of the community. The lecture covers tools and systems that have been effective and ineffective in large-scale communities, with emphasis on trust systems and social marking systems that place the majority of the tools in the hands of the players.

Takeaway: Attendees should come away from the lecture with an understanding of what a "reputation system" is, its value, the tools associated with a reputation system, and the pitfalls of improper or no implementation of a reputation system.

game design track

Intended Audience: Attendees that most benefit from this lecture are developers and publishers of MMOGs or leaders of large online communities.

Lecture – Advanced

Small Worlds: Competitive and Cooperative Structures in Online Worlds

Raph Koster & Rich Vogel *See pages 130, 146 for bios*
Saturday, March 8 · 11:30am-12:30pm
J1, Convention Center

Massively multiplayer or not, online worlds tend to form characteristic social structures. Research in psychology and sociology has shown that many of these replicate patterns are found in the real world. This lecture discusses topics such as the Tragedy of the Commons, scale-free networks and how they impact community formation, the Prisoner's Dilemma, and power-law distribution of talent. We'll then turn around and show the direct applicability of these constructs to issues such as in-game community size, the viability of player-versus-player combat, and the relative audience sizes of twitch-based online games versus RPGs.

Takeaway: The audience should leave the lecture with a sense of how game systems impact the nature of the community that forms, how players cooperate and what induces them to cooperate, what the trade-offs in audience and community are between skill-based and cumulative character games.

Intended Audience/Prerequisite: This is an advanced design lecture intended for the designer and producer of online worlds. Producers and designers of any game with online community components are a secondary audience.

Lecture – Intermediate

SOCOM: Bringing a Console Game Online

Bob Gutmann, Seth Luisi, Glen van Datta
See pages 114-148 for bios
Thursday, March 6 • 3-4pm
J1, Convention Center

With this generation of consoles attempting to bring online gaming to the masses, what do the masses really want? While online gaming is already established on the PC, it is still in its infancy in the console world. Creating an online console game can be a daunting task. You have to deal with limited hardware and software, and a game player who may not know the difference between a telephone cord and an Ethernet cable. This session discusses how Zipper Interactive and Sony Computer Entertainment America overcame these obstacles to create one of the most successful online console games ever created.

In this session, Seth Luisi discusses the design challenges behind an online console game, including online game design, user interface design, and localization issues. Glen van Datta discusses the SCE-RT network API and backend server technologies that were used to bring SOCOM online. Dr. Bob Gutmann discusses the steps Zipper took to implement SOCOM online using both the SCE-RT API and custom communications interfaces. This includes a review of the specific messages and network objects defined for the game. He indicates what aspects of this process were fairly routine, what aspects took a great deal of care, and some of the potential pitfalls. In addition, they discuss the difficulties of testing an online game as well as what went right and what went wrong when SOCOM went live.

Takeaway: Console online gaming is here, but what is an online console game? How on earth do we create an in-depth online experience on this little box? This session discusses the challenges, both design and technical, the developers faced bringing SOCOM: U.S. Navy SEALs online.

Intended Audience/Prerequisite: This session is aimed at online game designers, programmers, producers, and anyone with an interest in creating an online game. A basic knowledge of online gaming functionality is recommended.

Lecture – Beginner

Story and Gameplay Are One

Jesse Schell *See page 142 for bio*
Friday, March 7 • 3-4pm
J2, Convention Center

It is widely believed that storytelling and game design are two different art forms, with different (and sometimes conflicting) sets of rules. Could it be that there is a deeper set of rules that underlie all entertainment experiences? This talk plumbs the depths of human psychology to discover these surprising rules, and shows how they can be used to improve upon any entertainment experience.

Topics include:

- Entertainment experiences can be analyzed through "interest curves"
- Focus, empathy, and imagination make it possible to be entertained
- The art of interactive entertainment is the art of indirect control
- Story and gameplay are one

Intended Audience/Prerequisite: Anyone who designs entertainment experiences of any kind can benefit from this session. No prerequisite knowledge is necessary.

Panel – Intermediate

Story Summit

Hal Barwood, Bob Bates, Patricia Pizer, Mike Pondsmith, Lee Sheldon *See pages 114-148 for bios*
Thursday, March 6 • 9-10am
J2, Convention Center

The story summit gathers expert designers from different genres to assess the state of storytelling in games. The panelists discuss the common issues facing storytellers in all games, as well as the challenges presented by individual game types. The panelists include designers of traditional single-player games, as well as those working on multiplayer, online, and massively multiplayer games.

Takeaway: Storytelling has spread to virtually every game genre. Attendees learn basic techniques that apply to all genres, as well as adaptations that make it possible to present stories within different game types.

Intended Audience/Prerequisite: The panel benefits anyone interested in learning storytelling techniques within games. There are no prerequisites.

game design track

Lecture – Intermediate

Temptation and Consequence: Dilemmas in Videogames

Steve Bocska *See page 115 for bio*
Saturday, March 8 • 12-1pm
J1, Convention Center

All videogames include some element of ongoing decision making and response, making the dilemma a crucial weapon in the game designer's arsenal. The difficulty, however, lies in crafting the dilemma in a nontrivial way that will cause players to feel as though their actions significantly determine or affect their experience later in the game. The greater this sense, the more immersive the experience becomes.

In this session, the Monty Hall puzzle is used to show that, by devious staggering of information, the player can be engaged in a more realistic way, heightening the immersion and sense of realism. The Prisoner's Dilemma is also employed as an insidious mechanism for encouraging players to pursue cooperative communication and trust-based solutions to further their own personal interests. Both of these techniques allow the game designer and AI programmer to provide an experience that requires the player to analyze and evaluate multiple options and demonstrate nontrivial analytic and decision-making skills.

Takeaway: Attendees learn approaches that allow them to create clever new puzzles and dilemmas in their game designs, are exposed to the psychology of decision making, and learn how to harness this knowledge towards creating a more fulfilling interactive experience. Attendees also understand the principles of the Monty Hall puzzle, Nash Equilibrium, and the Prisoner's Dilemma as they apply to videogame design.

Intended Audience: Ideal attendees consist of experienced game designers, AI programmers, and those seeking to expand their understand the psychology of decision making in videogames.

Lecture – All

Toward Building a Fully Realized Interactive Drama

Michael Mateas & Andrew Stern
See pages 134, 144 for bios
Thursday, March 6 • 10:15-11:15am
J1, Convention Center

Façade is an artificial intelligence–based experiment in electronic narrative, an attempt to move beyond traditional branching or hyperlinked narrative to create a fully realized, one-act interactive drama. The presentation is twofold, first detailing the results of a three-year collaboration to engineer a novel architecture for supporting emotional, interactive character behavior and drama-managed plot, and then demonstrating a completed first work built within the architecture, to be publicly released as a free download in spring 2003.

In Façade , you, the player, using your own name and gender, play the character of a longtime friend of Grace and Trip, an attractive and materially successful couple in their early thirties. During an evening get-together at their apartment that quickly turns ugly, you become entangled in the high-conflict dissolution of Grace and Trip's marriage. No one is safe as the accusations fly, sides are taken, and irreversible decisions are made. By the end of this intense one-act play you will have changed the course of Grace and Trip's lives, motivating you to replay the drama to find out how your interaction could make things turn out differently the next time.

This work is unlike narrative games to date in that the experience is explicitly dramatic, yet open-ended and non–goal-oriented, as if you were improvising a drama on stage with two intelligent actors, Holodeck-style. Interaction is direct and continuous as you converse in natural language and move and gesture freely within the dramatic world. AI controls Grace and Trip's personality and behavior, including emotive facial expressions, spoken voice, and full-body animation. Furthermore, the AI intelligently chooses the next story "beat" based on your moment-by-moment interaction, what story beats have happened so far, and the need to satisfy an overall dramatic arc.

Takeaway: Attendees learn the authors' techniques of deconstructing a dramatic narrative into a hierarchy of story and behavior pieces, and get a detailed tour of an AI architecture that reconstructs a real-time dramatic performance from those pieces while integrating the player's moment-by-moment interactions. The authors share their lessons learned about what works and what doesn't in the design and engineering of interactive stories, and discuss what it will require to create even more generative story systems in the future.

Intended Audience/Prerequisite: This presentation is of interest to both game designers and programmers. Some prerequisite knowledge of AI will help in understanding the details of the technical content.

Lecture – Beginner

Toward Massively Responsive Conversations

Sheldon Pacotti *See page 139 for bio*
Saturday, March 8 • 10:30-11:30am
B2, Convention Center

With the Deus Ex 2 tools and conversations serving as a reference point, this lecture examines techniques for writing conversations in a highly dynamic game environment. As players are given more freedom, more demands are placed on conversational logic. In an environment such as Deus Ex 2 where players are given mutually exclusive goals, are allowed to complete goals in an arbitrary sequence and in different ways, and are often allowed to ignore goals completely, how does a writer face the blank page? The first half of the lecture covers practical techniques for avoiding non sequiturs, logic problems, and schizophrenic NPCs. The second half considers what future game worlds might hold in terms of player freedom and how that will impact dialogue writing. Tools like ConEdit resemble simple scripting languages. Will writers of the future need to be programmers? What structures from traditional programming languages are most suited to interactive conversations? To AI? To the simulation of the human mind?

Takeaway: Writing responsive conversations for a dynamic game environment can be simplified with a few easy techniques. As the need for NPC responsiveness increases, developers may need to develop a new class of tools for a new set of problems.

Intended Audience: This lecture is open to anyone with an interest in storytelling in games.

Panel – All

Three Great Mobile Games

Matthew Bellows, Jim Blackhurst, John Newcomer, Matt Yaney
See pages 114-148 for bios
Friday, March 7 • 12-1pm
B2, Convention Center

This panel presents three of the best new mobile phone games. After a demonstration of each game, the panel discusses what makes it engaging, creative, and appropriate for the medium. The designers of each game then talk about their development choices, what they learned, and what they'd do differently next time.

game design track

Takeaway: The audience gains insight from four mobile game experts about the current state of the art, the capabilities of the medium, and the challenges of creating a game for mobile phones.

Intended Audience/Prerequisite: In this session, designers and publishers getting involved in the mobile games segment gain a perspective on what works on mobile. The only prerequisite is a curiosity about really small games.

Lecture – All

34 Ways to Create Emotions in Games

David Freeman *See page 122 for bio*
Saturday, March 8 • 2:30-4:30pm
J2, Convention Center

Is it truly possible to make games emotionally engaging? Certainly artful screenwriters and filmmakers are wizards at eliciting a wide range of emotions from audiences, but the challenges they face are minor compared to those in the game industry. Game designers and publishers know that making their games more emotionally immersive is critical to expanding their demographics, as well as the artistry of their games. But how do you invoke a breadth and depth of emotions through game-play? Game designer and writer David Freeman has distilled over 1000 techniques for creating emotions in games, and is actively using these techniques in games he's designing and/or writing for Westwood Studios, Activision, Infogrames, Universal Interactive, and other companies. These dynamic "Emotioneering" techniques fall into 34 distinct categories. In this jam-packed talk, accompanied by a 20-page handout, David will go over these 34 categories and give examples of specific techniques from each. He'll analyze approaches for creating emotion in games, which have been taken in the past, and then discuss what techniques might work for games in the future. This talk avoids generalities and dives straight into the heart of the matter.

Intended Audience/Prerequisite: This lecture is for anyone involved in game design who wants to evoke a greater breadth and depth of emotion through their gameplay. There are no prerequisites.

Lecture – Advanced

20/20 Design Vision

Andrew Leker *See page 132 for bio*
Saturday, March 8 • 2:30-3:30pm
B2, Convention Center

There is an expression in the gaming industry that "Successful designers are wrong faster," meaning that they discover and learn from their errors more quickly on their way to solutions. That's what 20/20 design vision is all about, being successful quickly. Having 20/20 design vision isn't something that most designers are born with. It takes great commitment and hard work to "see" the benefit that each design decision or feature will bring. Many developers use rapid prototyping to get the feedback they need to resolve their design issues, but limits of time and money demand that hard choices be made early in this process.

This lecture covers extremely powerful and somewhat controversial techniques used to improve a project's design decisions. A five-pronged approach will be presented with illustrative examples:

- Identify problem: This tends to be fairly natural for most developers, as problems in a game system or with the "feel" of a game tend to show as the game is played during development.

- Identify goals: There are several broad categories of goals that will be discussed: Emotional impact, changes in game state, and goals of immersion. Product goals will also be discussed briefly.

- Identify apparent truths and consider their repercussions: Apparent truths can be thought of as the environment or "space" for a game's design solutions. They can also be considered requirements, because ignoring fundamental aspects of a game's physics, fiction, or human nature can lead to glaring product flaws.

- Choose a solution to accomplish goals in light of apparent truths and their repercussions: Design decisions are now made and tested through an iterative process.

- Draw a conclusion: Did the process accomplish the aforementioned goals? If so, was it for reasons that were predicted? If not, was it due to oversight, negligence, inexperience, or a flawed or incomplete implementation?

The power behind these steps is that conclusions refer back to goals and apparent truths, improving the chance of success with each trial. This is not the "shotgun" approach commonly used at less experienced studios, but rather a directed search through a problem space.

Takeaway: Attendees learn the steps toward 20/20 design vision through principles and numerous practical examples. They learn techniques that can be applied to a broad assortment of design and implementation problems. The most valuable takeaway is a formal, repeatable approach that can be shared with other team members. Though analytical by nature, this lecture is intended to be inspirational because it is based in principles, not knowledge.

Intended Audience/Prerequisite: This lecture is intended primarily for designers and producers, though programmers and artists are likely to find this common-sense approach appealing. There is no prerequisite knowledge required.

Roundtable – All

User Interface Design

Garner Halloran *See page 124 for bio*
Thursday, March 6 • 9-10am
Santa Clara II, Hilton
Friday, March 7 • 3-4pm
Santa Clara I, Hilton
Saturday, March 8 • 4-5pm
Santa Clara I, Hilton

The user interface is arguably the most important part of the game. A bad interface can cause the user to throw the game aside in frustration. This roundtable focuses on ways to make interface better and more user-friendly. Areas of user interface design that are discussed include menus, control schemes, use of color and sound, expert versus

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novice users, text versus icons, and good and bad examples of UI design.

Takeaway: Attendees take away a better understanding of what constitutes good user interface design and techniques for improving interfaces in their own games.

Intended Audience/Prerequisite: This roundtable is intended for designers, programmers, and artists who work on user interface design. All levels of experience are encouraged to attend.

Roundtable – Intermediate

Web-Based Games Roundtable

Brian Robbins *See page 141 for bio*
Thursday, March 6 • 10:15-11:15am
Santa Clara I, Hilton
Friday, March 7 • 10:30-11:30am
Santa Clara II, Hilton
Saturday, March 8 • 2:30-3:30pm
Santa Clara I, Hilton

Web-based games are not what many people consider to be "real" games. However, these games are played by the masses. Sites like Zone.com, games.yahoo.com, and Pogo.com regularly have 50,000 to 100,000 or more people playing at one time. Most of these games are much simpler and have a much smaller budget than traditional titles. This series of roundtables discusses many of the issues involved in creating and maintaining web-based games, and the sites where they are played. Each day focuses on a single issue. Day one covers technology, day two business models, and day three community issues.

Takeaway: Attendees leave the roundtables with a better feeling for what is happening in the web-based game industry. They gain insight into other people's ideas, and as well as receive feedback on their own methods.

Intended Audience: These roundtables are designed for developers and publishers of web-based games.

igda track

IGDA (International Game Developers Association) track sessions address the most relevant topics affecting the developer community today. Many sessions are linked to committee work and outreach efforts. Attendees come away from the IGDA track empowered to make a difference.

Group Gathering – All

Academics Group Gathering

Frans Mayra *See page 134 for bio*
Thursday, March 6 • 4:30-5:30pm
IGDA Booth, Concourse Level

Do games stir your analytical mind? Are you interested in creating models and theories that capture the essence and uniqueness of games? Are you teaching a new degree on game development? This Group Gathering is a place where you can meet other academic game researchers, teachers, and professors who are visiting GDC. The emphasis is on informal discussion and getting to know other scholars interested in the world of games and game development.

Takeaway: Contacts to other academic game researchers and teachers working with games; better idea of the current situation in the academic game research field.

Roundtable – Advanced

AI Interface Standards: The Road Ahead

Alexander Nareyek & Nick Porcino
See pages 138, 140 for bios
Saturday, March 8 • 9-10am, 10:30-11:30am
San Carlos II, Hilton

Following a roundtable on AI interface standardization at the last GDC, a committee has been set up to establish such standards. The committee is part of the International Game Developers Association and involves more than 65 game AI developers, academics, middleware representatives, and other relevant experts.

Alexander Nareyek, chairperson of the committee, and Nick Porcino, a member of the steering committee, presents the motivation and goals of the committee and, most importantly, describes and discusses the state of the committee's work. Working groups are currently in place for the topics of pathfinding, steering, decision trees, finite state machines, rule-based systems, goal-oriented action planning, and world interfacing.

The roundtable offers an exclusive opportunity to hear about the latest standards directions and to influence the future directions yourself by giving your feedback to the committee.

Takeaway: Participants get informed about the AI interface standards initiative's current state and future directions.

Roundtable – Intermediate

Alternative Business Models for Online Games

Brian Robbins *See page 141 for bio*
Friday, March 7 • 9-10am
San Carlos I, Hilton

The Internet opens up a new opportunity for developers to become hybrid developer/publishers and deal directly with their audience. While the predominantly "accepted" business model for the industry has been to develop games for publishers who fund the titles, many developers across the globe are quietly earning a decent living and growing their companies by selling directly to their audience via the web as either their exclusive revenue, or a portion of their revenue. This roundtable is a call for developers who are actively involved in "contrarian" business models to share with each other what they have tried, what's worked, and what doesn't work in creating this new business model. This session will be used as input for the ongoing work of the IGDA's Online Games Committee and their annual whitepaper.

Takeaway: Learn new ideas on how to grow an independent business using a contrarian online business model and provide input to the IGDA's Online Games Committee.

Group Gathering – All

Chapter Coordinators Group Gathering

Liz Wakefield *See page 147 for bio*
Friday, March 7 • 3-4pm
IGDA Booth, Concourse Level

IGDA chapters are popping up all over the world. Dozens of IGDA chapter coordinators volunteer to build local game development communities. This Group Gathering gives chapter coordinators the chance to connect with each other. Through informal discussion, we'll get to know each other and make contacts to facilitate interchapter communication throughout the year.

Takeaway: Contacts to other IGDA chapter coordinators; ideas for effective chapter management.

Group Gathering – All

Demo Sceners Group Gathering

Vincent Scheib *See page 142 for bio*
Thursday, March 6 • 10:15-11:15am
IGDA Booth, Concourse Level

Demo Sceners and X-Sceners, come to meet and greet your peers. Share what you've been up to, engage in some discussion about the Scene today, and relax with your friends.

Takeaway: Networking with Demo Sceners in the game industry.

igda track

Roundtable – All

Developer-Focused Curriculum Feedback

Jason Della Rocca & James Thrush *See pages 118, 145 for bios*
Friday, March 7 • 10:30-11:30am
San Carlos I, Hilton

Game development is rapidly growing as a discipline and area of study in schools, universities, and institutes around the world. As the number of schools that offer game development in their curriculum increases, the lack of coherence becomes increasingly evident. There is a growing need for a curriculum framework that schools and instructors can use as a guide or reference when developing their curricula and coursework. With such a framework, the education on offer will grow in relevance and further increase in value in the eyes of hiring studios and in the game industry at large.

The IGDA's Education Committee has been developing such a framework and would like to hear feedback and input from developers, studio managers, and HR. What do you want and what does the industry need?

Takeaway: Answers to what developers want and what the industry needs to become better educated and more productive, and how that translates to the IGDA's curriculum framework and academic outreach endeavors.

Roundtable – All

Developers As Teachers: Needs and Potentials

Mark Meier *See page 136 for bio*
Thursday, March 6 • 10:15-11:15am
San Carlos II, Hilton

This roundtable considers the impact developers can have as teachers on the world of education. Specifically, dialogue at the roundtable focuses on the impact developers can have on students now that college programs focused on game art, design, and programming are popping up all over the world. Currently, Gamasutra lists more than 200 of these programs on its site, many of which offer bachelor's degrees in some specialty of the game industry. In addition, a handful of these schools, like USC, offer master's degrees in the field. Colleges are capitalizing on the growing popularity of the game development "dream job," offering classes about the skill sets it takes to make the game industry tick.

At the roundtable discussion, attendees are introduced to the idea of cooperation between gaming students and developers themselves, in order to ensure the industry has a hand in training its future workforce. Discussions will consider the benefits of getting developers involved as teachers and supporters, assuming that we'd rather invest in our future before it arrives on our doorstep with crap-tacular reels full of bad spaceships, lame explosions, abusive walk-cycles, bug-ridden demos, or worse... flying logos with obnoxious lens flare shining willy-nilly all over the screen.

Everyone at the roundtable explores what it takes for developers to get involved with education: from showing students the trails we've blazed thus far in the industry, to giving them the tools they need to take gaming onward and upward in the years ahead; whether developers do this through direct involvement in the classroom, or in the creation of developer-student cooperatives that ensure communication and access between parties.

Takeaway: An understanding of the impact developers can have on student education and how to get started in teaching or get connected with academia.

Group Gathering – All

Diversity in Game Development Group Gathering

Darrell Porcher *See page 140 for bio*
Saturday, March 8 • 10:30-11:30am
IGDA Booth, Concourse Level

At GDC 2001 an informal roundtable to discuss the role of "minorities" in game development was held on the last day of the conference. The general consensus was that it was a very valuable experience and offered a tremendous exchange of information, ideas, and contacts.

As a result of that first meeting, at GDC 2002 a packed and lively roundtable discussion addressed topics on stereotypes, education, networking, and barriers to the industry. The roundtable received great coverage and feedback. One suggestion was to open the forum to everyone at the conference, including non-badge holders, and to make it more social. Many members of the discussions have formed friendships and business partnerships since the first informal meeting.

This Group Gathering offers an open dialogue and a social forum in which to exchange information, particularly in the area of diversity, network, and meet fellow game developers and friends.

Takeaway: We hope you take away a new point of view and new friends.

Group Gathering – All

Environment Artists Group Gathering

Jason Wiener *See page 147 for bio*
Friday, March 7 • 12-1pm
IGDA Booth, Concourse Level

You are creating concept art for a game. You've been asked to design the place where the main creature hangs its hat. How does the shape of the hat inform the structure of the kitchen or bedroom? How can its design be reflected in interior decorations? How does the number of heads on the character affect your shape of the entire environment? Take a break from lectures to chat and draw. Explore how all aspects of a creature can be considered to create richer dwelling environments, from sleeping, eating, and cleaning habits, to recreation, religion, and sexual appetites. Topics of discussion will range from traditional interior design theory to wild flights of imagination. Come prepared to think, chat, and create.

Takeaway: Attendees gain a detailed conceptual framework for designing living environments in fantasy and science fiction settings. Come draw with us!

Roundtable – Advanced

Finance Best Practices

Kirk Owen & Chacko Sonny
See pages 139, 143 for bios
Thursday, March 6 • 4:30-5:30pm
San Carlos I, Hilton
Saturday, March 8 • 2:30-3:30pm
San Carlos I, Hilton

Organized by the IGDA's Business Committee, this roundtable will examine how developers can work on improving their financial positions as companies. Topics to be discussed include how to develop accurate project budgets, understanding cash flows, the different kinds of expenses (for example, variable versus fixed costs) that a developer needs to budget for, how to negotiate with banks, and understanding the typical expenses a publisher sees so that negotiations can occur with a win-win philosophy in mind. Success with "alternate" project funding models will also be explored. The end goal of this roundtable is to prepare a summary report on the topic of finance best practices for distribution to the game development community via the IGDA web site. In sharing this best-practice knowledge, we hope that developers will thereby be able to bring greater financial stability to their companies.

igda track

Takeaway: Attendees have an opportunity to share their best finance practices and learn from others.

Intended Audience: Anyone involved in the funding, budgeting, and other financial aspects of a game development studio.

Panel – Intermediate

Finoings of IGDA's 2002/2003 Online Games Whitepaper

Alex Jarett, Jennifer MacLean, Dave Rohrl, Jeferson Valadares, John Welch *See pages 114-148 for bios*
Saturday, March 8 • 9-10am
B2, Convention Center

The IGDA's Online Games Committee will publish and present its updated 2002/2003 whitepaper on online games. A shortened version of the whitepaper will be published in the proceedings and the full version will be available at www.igda.org/online_report.htm. The whitepaper was prepared by over 20 volunteer developers and publishers from across the world. Section Editors of the whitepaper will participate in this panel discussion of trends identified in the whitepaper. Markets to be discussed include: web games, console, PC match play/online, and massively multiplayer (hardcore). Topics to be discussed include: market overview, business models, trends in online game design and production, trends in game technology overview, and a review of the activities of the top online publishers.

Takeaway: Attendees come away with better knowledge on the top trends in the market, business models, design, technology, and the activities of the top publishers.

Panel – All

Freedom of Expression: Dealing with the Threat of Censorship

Jason Della Rocca, Daniel Greenberg, Hal Halpin, Gerard Jones, Marc Szafran *See pages 114-148 for bios*
Thursday, March 6 • 10:15-11:15am
A7, Convention Center

Public concern over violence in games, the addictiveness of games, and sexual stereotyping are just a few ongoing issues affecting the game industry and its perception in the media. And, with some courts stating that games are a medium incapable of expressing ideas, it is tough not to become overwhelmed by the battering of our creative endeavors.

The various ratings systems around the world (including ESRB, ELSPA, and ISFE) and their associated marketing guidelines have been a significant initiative in dealing with these negative perceptions. Yet what is the true impact, creatively and financially, of ratings on the game industry? What is the impact of the looming threat of government regulations? How does all this play into the retail side, which seemingly wields the most power to censor content?

Experts on these issues explore how we can better leverage the ratings systems, work more closely with the retail channel, and strive to shed a more positive light on our unique form of entertainment.

Takeaway: Attendees leave with a better understanding of and appreciation for the topics of game ratings, regulations, media perceptions, and social responsibility.

Roundtable – Advanced

Game Design Methods

Bernd Kreimeier *See page 130 for bio*
Thursday, March 6 • 3-4pm
San Carlos II, Hilton
Saturday, March 8 • 12-1pm
San Carlos II, Hilton

Game development involves numerous disciplines: visual arts, user interface design, software engineering and programming, and others. Like the filmmaking process, game development is a long term effort with significant risks, requiring conceptual tools for planning, prototyping, and evaluation. Unlike filmmaking (such as the scriptwriting stage of it), game development can not yet draw on a standard set of tools for its core component: the game design. In comparison to the other disciplines involved in making games, game design is lagging behind with respect to the sophistication of the tools game designers employ to perform their tasks.

There are, however, tools game designers routinely borrow from other disciplines and apply with varying success: from the Hero's Journey to concepts from the physics of dynamic systems, to payoff matrices from mathematical game theory. There is also a huge body of knowledge from researchers examining HCI and user interface design, such as the usability studies performed on commercial games by the Microsoft User-Testing Group headed by Bill Fulton. Game designers are starting to look into data analysis of user behavior, as in the case of Will Wright's cooperation with Carnegie Mellon. Hal Barwood and Noah Falstein's "400 Project" rules, Doug Church's "Formal Abstract Design Tools" and adaptations of Christopher Alexander's "Design Patterns" are examples of semiformal attempts to document game design concepts and the resulting language shared by designers.

This roundtable attempts to review the state of the art in formal game design methods and related conceptual tools. It invites experienced game designers to discuss their various successes and failures to arrive at a better understanding of their own thought processes, and to subsequently move from introspection to communication within a team and beyond. The aim of the roundtable is to discover which methods work and which do not, in order to advance the search for practical, hands-on means to improve game designs and the game design process itself.

Takeaway: The purpose of the roundtable is to review the current set of design methods available to game designers, identify the most pressing needs, and attempt to determine promising candidates.

Group Gathering - All

***Game Programming Gems* Group Gathering**

Mark DeLoura *See page 118 for bio*
Thursday, March 6 • 11:30am-12:30pm
IGDA Booth, Concourse Level

Meet up with the community of game developers who have contributed to the *Game Programming Gems* series and share your thoughts with them on where the future of the series should go. What other topics should we cover in the books? How can we make the books more useful and

igda track

accessible for game developers? Please bring your opinions.

Takeaway: You'll come away from this gathering with happy feelings, a bunch of contacts with smart game developers, and an idea of how to become involved in the future of the *Game Programming Gems* series.

Roundtable – All

Game Ratings

Daniel Greenberg & Marc Szafran
See pages 124, 145 for bios
Friday, March 7 • 4:30-5:30pm
San Carlos I, Hilton

Many developers lack a firm understanding of the ESRB ratings system and how it affects the design and ultimate salability of their games. For the most part, developers appreciate the existence of the ratings (in their ability to empower consumer choice and as a defense of their creative freedom), but at times are frustrated by some of the specifics of how they're administered.

The IGDA's Violence & Social Issues Committee has invited the ESRB to sit down with us for this roundtable. This session represents an ideal opportunity for developers to discuss their concerns, provide feedback and input, and enter into a productive dialogue with the Entertainment Software Rating Board.

Takeaway: An opportunity to start a dialogue with, and gain a better understanding of, the ESRB's game ratings.

Roundtable – Advanced

Human Resources Best Practices

Clarinda Merripen & Leah Rubin
See pages 136, 142 for bios
Thursday, March 6 • 9-10:00am
San Carlos I, Hilton
Saturday, March 8 • 12-1pm
San Carlos I, Hilton

Organized by the IGDA's Business Committee, this roundtable will examine how developers approach personnel hiring, training, reviews, and compensation. In addition, different approaches to company organization (such as teams, departments, and matrix structures), different types of compensation systems (bonuses, base salary, share options, and so on), and the importance of company culture will be discussed.

The end goal of this roundtable is to prepare a summary report on the topic of human resource best practices for distribution to the game development community via the IGDA web site. In sharing this best-practice knowledge, we hope that developers will thereby be able to improve their human resource practices.

Takeaway: Attendees have an opportunity to share their best human resource practices and learn from others.

Intended Audience/Prerequisite: Anyone involved in the hiring process and ongoing maintenance of our industry's most important resource.

Roundtable – All

IGDA Chapter Building Strategies

Jason Della Rocca *See page 118 for bio*
Saturday, March 8 • 4-5pm
San Carlos II, Hilton

IGDA chapters have been popping up all over the world. Some are doing really well, with monthly attendance well over the 100-person range and consistently strong presentations. Other chapters are having a tough time building momentum, or even getting the first gathering underway. What can chapters learn from each other? What strategies have worked to build and maintain momentum? Furthermore, how can chapters work with each other and best leverage the resources provided by the IGDA? During this session we'll share existing strategies and also devise new ones.

Takeaway: Attendees leave with strategies for building a stronger sense of developer community via their local IGDA chapter.

Intended Audience: This working session is intended for all IGDA chapter coordinators, organizers and advisors, including those that are already involved with an IGDA chapter or are planning to be.

Group Gathering – All

Indie Developers Group Gathering

John Szeder *See page 145 for bio*
Saturday, March 8 • 2:30-3:30pm
IGDA Booth, Concourse Level

As the mainstream game industry consolidates into a few key, well-funded development groups, we're seeing a resurgence in smaller, independent game developers that are trying to make their mark on gaming. Independence means a lot of things to a lot of different people, but the common element is that independent developers make games "their own way." This group gathering is for developers that want to meet up and discuss different ways they're operating "outside the system," whether it's through innovative business models, game designs, target markets, development models, technology, or all of the above.

Takeaway: Learn about and share wisdom on how to succeed as an independent game developer in a decidedly rigidly structured industry.

Group Gathering – All

Media Professionals Group Gathering

Jennifer Olsen *See page 139 for bio*
Saturday, March 8 • 12-1pm
IGDA Booth, Concourse Level

Push that deadline back an hour and join fellow media professionals for casual networking and discussions of game-related journalism. As games have become more mainstream, so have the media outlets devoting time and space to game coverage to this broader audience. How has our audience changed, and how should editors and journalists respond to satisfy people's demands for information? How are the roles of online, print, and broadcast media evolving when it comes to industry coverage? What is the future of game criticism, and can we draw a roadmap to it from here? What common ethical quandaries arise, and what professional standards of conduct are appropriate to address them? Professionals representing trade, enthusiast, and generalist media are encouraged to participate and share perspectives from the crossroads of a nascent field.

Takeaway: Attendees take away new perspectives of the present and future game-related journalism by networking with colleagues in a relaxed, informal atmosphere.

Group Gathering – Beginner

Newbie Artists Group Gathering

Marc Mencher *See page 136 for bio*
Saturday, March 8 • 9-10am
IGDA Booth, Concourse Level

This Group Gathering is an informal crash course on everything you need to know about having a successful career as a game artist. In this friendly, personal, and nonintimidating atmosphere, you will learn how to research the market, meet the right industry people, access the unadvertised jobs, sell yourself, create the perfect demo/portfolio and résumé, and professionally handle interviews. Look for industry veterans to be on-hand to chat with and learn from.

Takeaway: Attendees gain confidence and knowledge not only to get a job as a game artist, but also to manage a successful career, plus some new industry contacts.

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Group Gathering - Beginner

Newbie Designers Group Gathering

Marc Mencher *See page 136 for bio*
Friday, March 7 • 9-10am
IGDA Booth, Concourse Level

This Group Gathering is an informal crash course on everything you need to know about having a successful career as a game designer. In this friendly, personal, and nonintimidating atmosphere, you will learn how to research the market, meet the right industry people, access the unadvertised jobs, sell yourself, create the perfect demo and résumé, and professionally handle interviews. Look for industry veterans to be on-hand to chat with and learn from.

Takeaway: Attendees gain confidence and knowledge not only to get a job as a game designer, but also to manage a successful career, plus some new industry contacts.

Group Gathering – Beginner

Newbie Programmers Group Gathering

Marc Mencher *See page 136 for bio*
Thursday, March 6 • 9-10am
IGDA Booth, Concourse Level

This Group Gathering is an informal crash course on everything you need to know about having a successful career as a game programmer. In this friendly, personal, and nonintimidating atmosphere, you will learn how to research the market, meet the right industry people, access the unadvertised jobs, sell yourself, create the perfect demo and résumé, and professionally handle interviews. Look for industry veterans to be on-hand to chat with and learn from.

Takeaway: Attendees gain confidence and knowledge not only to get a job as a game programmer, but also to manage a successful career, plus some new industry contacts.

Panel – All

Preserving the Past: The Panel

Jim Charne, Greg Costikyan, Henry Lowood, Steve Meretzky *See pages 114-148 for bios*
Friday, March 7 • 10:30-11:30am
B1, Convention Center

Most games produced by our industry in its quarter-century of existence are no longer around. Even if the software were available, chances are you'd never find the hardware to run it. Working copies of classic videogame machines are becoming more and more rare.

Furthermore, after all these years, many of us have storehouses of archival materials in basements or garages: design notes, concept art, prerelease versions of games, and so forth. What will become of these historical treasures when we retire or (let's face it) die? Academia is starting to take an interest in games as a form of culture and in the history of the field, so scholars have an interest in preserving these materials. As game developers, our understanding of what is possible in games is informed by our acquaintance of games past.

The purpose of this session is to consider the best method or methods to achieve these goals and preserve the past.

Some possibilities:

- A virtual game museum, living on the web, where people can play games from the past using hardware emulators
- A bricks-and-mortar game museum
- A game wing at an existing bricks-and-mortar museum
- An archive at an academic institution

It will take enthusiasm and hard work, or else any such efforts will fail, and the past of electronic gaming will be gone forever.

Please be there to help make sure this never happens.

Takeaway: How we can build a stable, long-range plan for saving and preserving games and game-development materials. Otherwise, increasing portions of the history of our industry will soon be irrevocably lost.

Roundtable – All

Preserving the Past: The Roundtable

Steve Meretzky *See page 136 for bio*
Friday, March 7 • 3-4pm
San Carlos II, Hilton

The purpose of this roundtable is to continue discussing the issues and goals laid out at the Preserving the Past Panel earlier in the conference, and to develop an action plan to meet those goals. Most games produced by our industry in its quarter-century of existence are no longer around. Even if the software were available, chances are you'd never find the hardware to run it. Working copies of classic videogame machines are becoming more and more rare.

Furthermore, after all these years, many of us have storehouses of archival materials in basements or garages: design notes, concept art, prerelease versions of games, and so forth. What will become of these historical treasures when we retire or (let's face it) die? Academia is starting to take an interest in games as a form of culture and in the history of the field, so scholars have an interest in preserving these materials. As game developers, our understanding of what is possible in games is informed by our acquaintance of games past.

The purpose of this session is to consider the best method or methods to achieve these goals and preserve the past.

Some possibilities:

- A virtual game museum, living on the web, where people can play games from the past using hardware emulators
- A bricks-and-mortar game museum
- A game wing at an existing bricks-and-mortar museum
- An archive at an academic institution

The plan is for this to be a working session, and for it to end with an action plan to begin achieving these goals in the short-term future. Without your ideas, enthusiasm, and hard work, this effort will fail, and the past of electronic gaming will be gone forever. Please be there to help make sure this never happens.

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Takeaway: We need a stable, long-range plan for saving and preserving games and game-development materials, or increasing portions of the history of our industry will soon be irrevocably lost.

Roundtable – Advanced

Promotion/Marketing Best Practices

Dan Ayoub & Ray Muzyka
See pages 114, 138 for bios
Thursday, March 6 • 10:15-11:15am
San Carlos I, Hilton
Saturday, March 8 • 9-10am
San Carlos I, Hilton

Organized by the IGDA's Business Committee, this roundtable will examine how developers can work with publishers most effectively to promote and market their games. Topics up for discussion include how to develop an effective promotional and marketing plan, how to produce promotional and marketing art, and how best to communicate with the PR and marketing staff at a publisher and with press. In addition, the developers who do their own promotion or marketing can discuss how they approach this.

The end goal of this roundtable is to prepare a summary report on the topic of marketing and promotion best practices, for distribution to the game development community via the IGDA web site. In sharing this best-practice knowledge, we hope that developers will thereby be able to work with their publishers to optimally market and promote their games.

Takeaway: Attendees have an opportunity to share their best marketing and promotion practices and learn from others.

Intended Audience: Anyone involved in the marketing and promotion of games.

Roundtable – Advanced

QA/Testing Best Practices

Laura Fryer & Eric Rees
See pages 122, 141 for bios
Thursday, March 6 • 3-4pm
San Carlos I, Hilton
Saturday, March 8 • 10:30-11:30am
San Carlos I, Hilton

Organized by the IGDA's Business Committee, this roundtable will examine how developers can work with publishers most effectively to test their games (quality assurance, playability, and compatibility). The topics examined will include different approaches to debugging early in, in the middle of, and at the end of projects; automated versus manual testing; and developing effective testing plans. In addition, the developers who do their own quality assurance testing can discuss how they approach this.

The end goal of this roundtable is to prepare a summary report on the topic of QA and testing best practices, for distribution to the game development community via the IGDA web site. In sharing this best-practice knowledge, we hope that developers will thereby be able to improve the quality assurance and testing of their games.

Takeaway: Attendees have an opportunity to share their best QA and testing practices and learn from others.

Intended Audience: Anyone involved in QA and testing for games.

Roundtable – Advanced

Resource Management/Scheduling Best Practices

Michael Murguia & Feargus Urquhart
See pages 138, 145 for bios
Thursday, March 6 • 11:30am-12:30pm
San Carlos II, Hilton
Saturday, March 8 • 4-5pm
San Carlos I, Hilton

Organized by the IGDA's Business Committee, this roundtable will examine how developers approach allocating project teams during different phases of projects, and how they build and maintain accurate project schedules, as well as how to communicate regarding project scheduling with publishers. The management of different disciplines such as programming, art, animation, design, and quality assurance testing will all be examined.

The end goal of this roundtable is to prepare a summary report on the topic of scheduling and resource management best practices for distribution to the game development community via the IGDA web site. In sharing this best-practice knowledge, we hope that developers will thereby be able to schedule and manage their projects more efficiently.

Takeaway: Attendees have an opportunity to share their best scheduling and resource management practices and learn from others.

Intended Audience/Prerequisite: Anyone involved in the scheduling and management of game development resources and projects.

Roundtable – All

Serious Games: Gaming Our Way to a Better Future

Ben Sawyer *See page 142 for bio*
Thursday, March 6 • 11:30am-12:30pm
San Carlos I, Hilton
Saturday, March 8 • 2:30-3:30pm
San Carlos II, Hilton

This roundtable will explore and educate developers about the opportunities they have in developing serious games for public policy and management. We will discuss how they are funded, developed, and marketed, as well as how games can contribute to the overall management of government, non-profit, and for-profit organizations. There have been a number of recent educational games and there are simple training games used by various organizations. However, the development skills exist to create far more advanced simulations that could be instrumental for managers and public administrators today. What if we took the skills that created SimGolf, Tropico, Capitalism, and Age of Empires and created truly advanced simulation games about complex managerial and public policy issues?

Much of governance is built on a dangerous learning paradigm we might term "learning too late." Things happen, and then policy makers react, with emergency response crews, legislation, or political excuses. That was acceptable behavior a hundred years ago, but it's inexcusable today. The challenge we face is to accelerate the capacity of all decision makers to learn, and ultimately to learn before doing. It is easier to connect the dots if you have seen them before, virtually or otherwise. If Boeing can design entirely on a computer, surely we can create serious games that simulate the choices and dilemmas facing today's public-sector managers.

In today's corporate world, more and more companies spend billions training managers fresh from college who have little hands-on experience. Even a fast-food restaurant manager needs to deal with hundreds of factors and unforeseen incidents, not to mention the mundane issues of accounting, hiring, and scheduling.

In the non-profit sector, many green idealists struggle to learn how to do more with less, and find innovative ways to handle organizations, that despite their non-profit status, are perhaps more complex than their for-profit counterparts.

igda track

Takeaway: Developers learn about new outlets for game development skills. Participants help form an industry consensus on the role games can play in improving public policy and management that we will share with the public at large afterwards.

Lecture – All

The Social Significance of Games: Killing Our Monsters

Gerard Jones *See page 128 for bio*
Friday, March 7 • 3-4pm
B1, Convention Center

Though still created largely by an esoteric community, videogames have reached a level of popularity and power that forces the world to react to them. Politicians act against them, teachers fret about them, psychologists and sociologists study them — with findings that often alarm the public. It's tempting to draw into defensiveness and geeky arrogance, but that isn't productive anymore. Old boundaries between cultural cliques have to be knocked down. As movies, TV, and pop music have had to do before them, videogames now have to step up into the cultural mainstream. How games affect people matters, and how games are perceived by the world matters. But when we look at the interactivity of game, gamer, and society without our defensive blinders on, we see that the picture is far richer, more interesting, and more encouraging than we usually think.

We need to understand why gamers love what they love and why so many people fear both the games and the gamers—and then begin the first real conversation about how games can become productive and respected components of society. Drawing upon scientific research, cultural studies, the history of other media, and anecdotal evidence drawn from the experiences of both gamers and the game critics, we can begin to understand why these creations are simultaneously so compelling and terrifying, and how they can figure even more significantly in the cultural landscape of the future.

Takeaway: The current tense dialogue about videogames in society can be made productive to all sides through mutual empathy and a willingness to look at what we know in new ways.

Roundtable – Intermediate

Software Patents and IP Rights in Game Development

Tobi Saulnier *See page 142 for bio*
Thursday, March 6 • 4:30-5:30pm
San Carlos II, Hilton
Friday, March 7 • 9-10am
San Carlos II, Hilton

Software patents are controversial but increasingly influential in the games industry. On the one hand patent law seems to be fundamentally at odds with the communal spirit of game development. On the other, if we stand on the sidelines while others collect patents, we could find ourselves blocked from using our own technology. This roundtable will provide an update from the IP Rights Committee of the IGDA, including the draft IP Rights white paper, priorities for IGDA, and planned activities such as a prior art database for the game development community to prevent patenting of pre-existing work.

Intended Audience/Prerequisite: The participants are assumed to have either limited familiarity with software patents, or be actively dealing with IP issues in their game development activities. This topic always spurs some great discussion, which will be focused around the issues identified in the IP Rights white paper, and towards setting priorities for activities for the coming year.

Takeaway: This is an important topic for software professionals and the subject of much misinformation. Participants come away with a deeper understanding of the software patent process and learn:

- A little more than they knew before about software patents and other IP rights
- Several perspectives about the validity of the patent concept as applied to software
- The existence of the IP Rights Committee and what initiatives it will be sponsoring
- Different approaches to dealing with patents and other IP rights in game development, with pros and cons to each approach

Group Gathering – All

Students Group Gathering

Alison Kelly *See page 130 for bio*
Friday, March 7 • 10:30-11:30am
IGDA Booth, Concourse Level

Are you looking to network with other students and faculty from across the world? Or are you a professional in the industry who would like to work with students and academics?

This gathering is where students, academics, and professionals can come together to network with each other and discuss various issues and concerns. For students this is an outlet where you can gain insight from others on how to launch or expand a student chapter, finance your organization and work with your university, including marketing and recruitment strategies. Also find out about other student chapters and their direction and vision, along with the successes and challenges they have faced.

Professionals are encouraged to attend and network with the next generation of developers and game industry professionals.

Takeaway: Attendees leave with strategies and a reference booklet for launching or growing a student IGDA chapter. Students, academics, and professionals will be able to network with each other to build stronger ties.

Roundtable – All

Videogame Violence: Rights and Responsibilities

Daniel Greenberg *See page 124 for bio*
Friday, March 7 • 12-1pm
San Carlos I, Hilton

Soaring videogame sales and surging graphics horsepower have focused attention on videogame violence like never before. From a judge's ruling that videogames cannot convey ideas to lawsuits claiming that the ideas in

igda track

videogames cause real-world violence, the subject is front and center in the headlines and the stakes are high. Could videogames lose First Amendment free-speech protections? Can publishers be found liable for the actions of gamers? Will stores be prevented from selling violent games? We'll examine the rights of game makers and consider our responsibilities in a constantly changing legal and cultural landscape. Express your ideas, experiences, and concerns.

Takeaway: Learn the latest information about government and legal action against videogames and game publishers, find out about ratings systems, and add your ideas.

Roundtable – All

Women in Game Development: Where to Next?

Heather Kelley *See page 129 for bio*
Thursday, March 6 • 9-10am
San Carlos II, Hilton
Friday, March 7 • 12-1pm
San Carlos II, Hilton

Since its inception in 2000, the Women in Game Development committee (WIGD) of the IGDA has been working to improve the male-female ratio within the game development profession. Join us at this roundtable to discuss our most recent efforts and find out more about our upcoming projects. While not a general discussion on "women in games," our roundtable will touch on a wide variety of matters relevant to improving industry-wide gender balance, such as workplace culture, recruitment, education, and mentorship. The roundtable is also intended to provide networking opportunities for women in the industry.

Takeaway: Participants receive an overview of WIGD's projects over the last year or so, and are invited to contribute to the future direction of the committee through leadership, outreach, and project participation.

Intended Audience: This session is intended for those interested in the IGDA's efforts to improve the gender balance in the interactive entertainment industry.

Group Gathering – All

Women in Game Development Group Gathering

Sheri Graner Ray *See page 124 for bio*
Thursday, March 6 • 3-4pm
IGDA Booth, Concourse Level

This gathering provides an opportunity for women to meet and network with each other and with others who are supportive of them and their position within the industry. The gathering is informally structured to allow maximum time for networking and interaction between attendees.

Topics to be covered may include résumé building and tips on finding work, dealing with workplace issues, attitudes toward women in the industry today, how employers can attract more women to their companies, and how the IGDA can help.

Takeaway: People attending this gathering should come away with a renewed sense of community and friendship as well as with new avenues to pursue for networking and support.

Group Gathering – All

Writers Group Gathering

Austin Grossman *See page 124 for bio*
Friday, March 7 • 4:30-5:30pm
IGDA Booth, Concourse Level

Writing is one of the most interesting and most difficult areas of game production. Come by and meet people who write story and dialogue in games, and discuss the state of the profession and the state of the art. Topics might include how writers work with game development teams, how story is evolving in games, and the Game Developers Choice Awards' new Excellence in Writing Award.

Takeaway: Writing is a pretty solitary process; this is a chance to share experiences, techniques, and opinions.

IGDA Annual Meeting

Friday, March 7 • 1:15-2:45pm
B1/4, Convention Center

The International Game Developers Association's board of directors and executive management gives developers a rundown of the association's progress over the past year, as well as indicate what's in store for the coming year. This will also be the time when new board candidates will be presented. There will be a Q&A period to get feedback and input from the community. The International Game Developers Association (IGDA) is an independent, nonprofit association for developers of entertainment software. The IGDA's mission is to build a worldwide community of game developers which leverages the expertise of its members for the betterment of the industry and the development of the art form.

production keynote

Keynote
Maintaining Creative Focus and Building Blockbusters

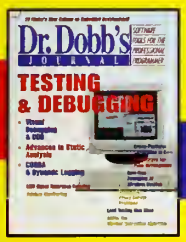
Bruce McMillan
Thursday, March 6 • 11:30am-12:30pm
Almaden Ballroom, Hilton

It takes more than a big marketing budget to turn a great game into a global blockbuster. As development teams swell, innovation can turn to feature creep, relationships get strained, and creative focus tends to get blurry. Bruce McMillan, executive vice president of EA Worldwide Studios, explores the strategies employed by EA to turn FIFA Soccer, Medal of Honor and the Harry Potter series into multi-million sellers. He'll discuss team management, accurate budgeting, the importance of meeting deadlines—tips that keep a studio close to the "Creative X."

Bruce McMillan
Bruce McMillan is executive vice president, Worldwide Studios, Electronic Arts. Internationally acclaimed game franchises Bruce has developed, produced or managed include Harry Potter, James Bond, Madden Football, Medal of Honor, EA Sports F1 Racing Series and the world's all-time best selling sports franchise, FIFA Soccer. In 1998, Bruce led the design and development of EA's record selling Soccer products. That year, Bruce moved from Vancouver to London to grow EA's UK Studio. He also led the release of EA's Bullfrog Studios Populous III, Dungeon Keeper II, and Theme Park World that year. In 2000, EA won the rights to develop a series of games based on J.K. Rowling's *Harry Potter* series. Bruce based that project at EA's UK studio in Chertsey, Surrey and worked closely with Ms. Rowling and partners at Warner Brothers. When the first game, Harry Potter and the Philosopher's Stone, launched it quickly became the largest and most successful launch in the 20-year history of Electronic Arts.

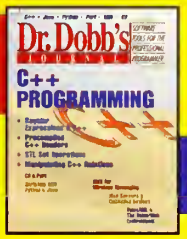
Why Do Serious Embedded Developers Read *Dr. Dobb's Journal?*

Value Lattice Static Analysis



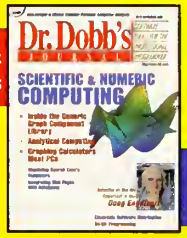
Real-Time Debugging & Wireless

Short Message Services



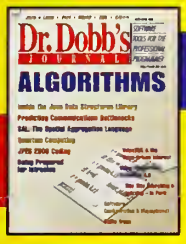
An Embeddable HTTP Server

Microcontrollers & Cordic Methods



Analytical Computing

Using Windows NT Embedded



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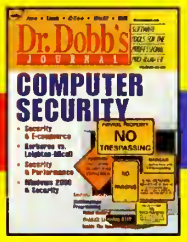
XML for Instrument Control and Monitoring



Packetable Security

Real-Time Simulation Protocol

Automated Streaming Video

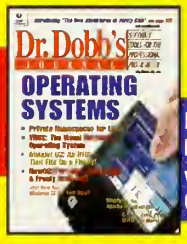
Module Design Guidelines for Real- Time Systems

Java and the WABA Toolkit

Wireless Networking & Berkeley DB

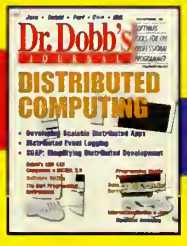
Real-Time Music Synthesis & Embedded Apps

Examining Windows CE 3.0 Real-Time Capabilities



Balancing Network Load with Priority Queues

Trampolines for Embedded Systems



Programming Mobile Phones

ActiveX Controls for Embedded Visual Basic

Palm OS Memory Leak Detection

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production track

Beyond bringing a game in on time and on budget, game producers must manage the demands of expanding development teams, bigger budgets, and a growing global market to create games that stand out from the crowd and find an audience. The Production Track offers proven tools and techniques to take a game successfully from pre-production to shipping.

Roundtable – Intermediate

Advanced Documents for Project Management

Dave Rohrl *See page 141 for bio*
Thursday, March 6 • 11:30am-12:30pm
D, Convention Center
Friday, March 7 • 10:30-11:30am
E, Convention Center
Saturday, March 8 • 4-5pm
Santa Clara II, Hilton

One of the critical jobs of a producer is to analyze, package, and present information about a project. There are a large number of off-the-shelf tools (such as Microsoft Project) that are great for collecting data, but you can create (and have created or wish you could create) documents for your team and for management that do a far better job of communicating project status, risks, and needs.

This roundtable is a great opportunity to show off innovative work in creating novel, imaginative project-status management documents, and to see the work that others have done. Come prepared to share the best work done in this area and to leave with an armful of new document formats to increase your personal effectiveness as a producer.

Takeaway: Just using existing tools such as Microsoft Project to create gargantuan GANTT charts is not the most effective way of communicating about your project's status, needs, or risks. With a bit of creativity and a commitment to understanding, you can create compact, readable documents that increase your effectiveness in communicating with team members and studio management.

Intended Audience/Prerequisite: This session is for producers who have developed or used original document formats to collect or package project status, risk, or direction info, and for producers who would like to learn new tools.

Sponsored by NXN Software

Asset Management: An Essential Part of Every Production

Gregor vom Scheidt *See page 146 for bio*
Thursday, March 6 • 11:30am-12:30pm
C1, Convention Center
Friday, March 7 • 4:30-5:30pm
C4, Convention Center

Today's development trends have created a need for advanced asset management tools that can improve the quality of content while reducing the cost of development.

In this sponsored session, key developers like Ubi Soft Entertainment will show how NXN alienbrain's powerful asset management technology helps improve quality throughout a game's development cycle, without sacrificing quality in the process.

Why Asset Management?

Budgets for mass-market computer games have climbed into the $3-5m range, with typical team sizes ranging from around 20-30 developers. Overseeing a 20-person production team with a tight budget and even tighter timeframe is a substantial management challenge. In addition to overseeing the creation of tens of thousands of files, management must contend with shifting development staff, multiple tool sets, collaborating with external suppliers, encouraging project- and company-wide standards and of course, tracking and controlling cost.

As a result, game development managers have begun to focus on ways to increase efficiencies throughout the production of content without sacrificing quality in the process. Asset management tools that provide more efficient art, code and team management during the production process can lead to time savings that ultimately equate to higher quality content and better profits.

Takeaway: Advanced asset management tools like NXN alienbrain can help development teams create content faster, without sacrificing quality in the process. A special presentation by Ubi Soft Entertainment and other key customers and partners gives attendees a producer's view of the benefits of asset management for game development.

Lecture – All

Brands Brands Brands: Working with High-Profile Licenses and Still Making a Great Game

Karthik Bala & Robyn Poirier *See pages 114, 140 for bios*
Saturday, March 8 • 10:30-11:30am
A7, Convention Center

It wasn't very long ago that any game that had a big movie or TV show license meant that the game was bad. Any one of us could come up with a list of games we've eagerly anticipated because of a successful movie or TV show and have been disappointed by the quality of the game itself.

However, the reality of the game industry is that high-profile licenses have a huge impact on sales and possible royalties to the developer. Furthermore, a high-quality title that ships on time, day, and date with a movie can lead to record sales. Even if you're not in it for the money (what money?) a high-profile license increases the size of your audience and number of players who will actually play your game.

It's no secret that working with a license is challenging. You have to please not only the publisher, but also the licensor who sets particular boundaries on what you can and cannot do. Often the development cycles on movie tie-in titles are very short due to the lack of lead time. Approvals of milestones often take a lot longer to turn around between the publisher and licensor. Plus the game has to ship on time to correspond with the day and date of the movie. Within these constraints, the developer is also trying to

produce a great game. It's a combination that's often difficult to pull off.

This session tackles some of the practical problems a developer faces when working on a high-profile license, such as working with the licensor and the importance of a good relationship, planning and managing approvals, understanding the brand and developing a compelling game design within the restrictions of the brand, what's important to the licensor, and matching the look and feel of the license in the game.

Case studies include MONSTERS INC., SPONGEBOB SQUAREPANTS 2, and POWERPUFF GIRLS 2.

Takeaway: Techniques for developing and managing a successful high-profile license project.

Intended Audience/Prerequisite: Producers, designers, and artists who are working on licensed brands or are intending to work on high-profile licenses for the first time.

Lecture – Intermediate

BUILDING DEVELOPMENT TEAMS: A CASE HISTORY OF MONOLITH PRODUCTIONS

Samantha Ryan *See page 142 for bio*
Thursday, March 6 • 10:15-11:15am
Almaden Ballroom, Hilton

This session presents a case history on Monolith Productions, a Seattle-based independent game development house that has grown significantly over the past six years from a small core of company founders to three successful internal teams. Monolith's projects include SHOGO, NO ONE LIVES FOREVER 1 & 2, ALIENS VS. PREDATOR 2, and TRON 2.0. The lecture focuses on citing successful team-building and product development strategies as well as those that produced unexpected or unwanted results.

Topics covered include:

- Team structure
- Management hierarchy
- Cross-team pollination and code sharing
- Project scheduling
- Cash flow management
- Corporate growth
- Publishing relationships
- General development successes and failures

Takeaway: Attendees become acquainted with how Monolith learned to build quality games in 18 months relatively on-time and on-budget.

Intended Audience: Attendees that benefit most from this lecture include managers and team members building or expanding internal development teams or starting their own companies.

Panel – Intermediate

COMMUNICATING WITH THE MOTHERSHIP: INTERFACING BETWEEN AMERICAN SUBSIDIARIES AND THEIR JAPANESE PARENTS

Ken Lobb, Yasuhiro Noguchi, Jason Rubin, Jesse Taylor *See pages 114-148 for bios*
Thursday, March 6 • 9-10am
A2, Convention Center

As the videogame industry matures, it becomes more internationally integrated. Gone are the days when a title released by a Japanese, European, or American company could instantly be understood to have been developed in the same territory. One aspect of this phenomenon is that large Japanese publishers with a significant development presence in the United States and Europe are more the rule than the exception. Cultural differences, language differences, style differences, HR differences, and other issues have led to some interesting interfacing between these Japanese parents and their western subsidiaries. This panel will discuss some of the challenges that such development subsidiaries have faced, as well as those methods and tactics which they have found to be successful. It is hoped that by sharing experiences, developers in similar situations, or those who may be placed in such situations by sale, merger, or acquisition, will leave with strategies for better communication with their Mothership.

Lecture – Intermediate

EFFECTIVE EVALUATION OF MIDDLEWARE

Seamus Blackley, Chris Carollo, Julian Davis, Peter Leahy
See pages 114-148 for bios
Friday, March 7 • 3-4pm
J1, Convention Center

Middleware now offers a vast array of options for development: physics, networking, AI, and even complete game architectures can be purchased and implemented straight out of the box. While tightening development schedules and improved offerings make middleware an increasingly attractive option, no one should bet the future of their business on outside components without first conducting a thorough evaluation. A panel of middleware veterans convenes to discuss what to look for, and what to avoid, when putting a potential middleware solution through its paces prior to purchase.

Roundtable – Intermediate

GAME EDITING TOOLS

Dave Weinstein *See page 147 for bio*
Thursday, March 6 • 3-4pm
E, Convention Center
Friday, March 7 • 4:30-5:30pm
Santa Clara II, Hilton
Saturday, March 8 • 12-1pm
Santa Clara I, Hilton

Traditionally, it's been common for tools development to be considered scutwork, assigned to junior programmers and having low requirements for stability and usability. As the amount of art and design work needed for modern games continues to increase, even minor improvements in tools can save hundreds or thousands of man-hours. What needs to be done to improve the state of tools in game development today?

Takeaway: Discuss the general requirements of artists and designers and how to better address them. Learn how engineers approach tools and how tools are used in other studios. And finally, acquire a better understanding of the communication and requirements issues with tools.

Intended Audience/Prerequisite: Engineers, artists, designers, and producers, preferably with experience with existing tools and product lifecycles, as that provides a baseline to the state of tools in shipping games.

Roundtable – Intermediate

GOODBYE TO POSTMORTEMS, HELLO TO CRITICAL STAGE ANALYSIS

Wolfgang Hamann *See page 124 for bio*
Thursday, March 6 • 9-10am
D, Convention Center
Friday, March 7 • 4:30-5:30pm
D, Convention Center
Saturday, March 8 • 9-10am
D, Convention Center

What is a postmortem? A cynical definition might be: A common artifact of the game development process whereby the game industry documents the fact that everyone seems to continuously make the same mistakes. The typical process starts at or near the completion of the project. Someone on the team gathers information on what happened over the past 18 months or so. Why is it done? Seemingly to not repeat the same mistakes in the next game. However, a review of postmortems

production track

on Gamasutra.com reveals the same or similar mistakes being made over and over again. Why? What is the point? The recommendation? Change the process. Get rid of postmortems entirely. It's time to consider Critical Stage Analysis, or CSA. The CSA process provides a quick, relatively painless process to find out what went right, what went wrong, what needs to be done to fix it, who will do it, and by when.

Takeaway: Improve the overall development process by providing a continuous feedback loop mechanism within the game and for the current game, not for the next game. Postmortems are too late. There is no time for action when action is needed most for the current game.

Intended Audience/Prerequisite: Producers, team leads, project managers, and anyone in the game industry with at least one full game's development cycle under their belt.

Sponsored by Criterion

Hollywood or Bust: The Future of Team Development

Kevin Bachus, Melanie Cambron, Dan Huebner, Jeff Lander, American McGee *See pages 114-148 for bios*
Thursday, March 6 • 3-4pm
C4, Convention Center

With the increase of people joining the game development community and curriculums being implemented at accredited learning institutions, this panel will discuss the future of putting a team together. Will teams go the way of Hollywood where programmers, artists, etc are hired on a per project basis depending on budget? Will levels of talent be established by acquiring application accreditations? Will people look for the bigger dollar after a project or will they stay as part of a development team as long as funding is available? Will A-List and B-List labels be put on individuals? Will "Agents" represent these individuals for future projects?

Takeaway: With insight from all sections of the industry, the panel will provide a fascinating debate and look for general consensus on the direction of team structures and employment for developers at all levels.

Sponsored by Criterion

How to Build a Galaxy Online

Rich Vogel *See page 146 for bio*
Thursday, March 6 • 4:30-5:30pm
C4, Convention Center

There are many Massively Multiplayer Online Games being launched this year. What does it take to make one of these games? When are these games finished after being released? What happens during the production cycle? What are the intricacies of developing a MMOG with one of the most well known movie franchises? Landing the development project of a Star Wars franchise is a major feat. The session will describe how to optimize technology so that content is well represented in the game playing experience. It will also take into consideration the expectations of fans and how best to meet those expectations.

Takeaway: By describing the development cycle of an online game, this lecture will provide people with a high level overview of what it takes to make an MMOG using a world-renowned movie franchise.

Lecture – Intermediate

How to Manage a Large-Scale Online Gaming Community

Raph Koster & Rich Vogel *See pages 130, 146 for bios*
Thursday, March 6 • 9-10:00am
J1, Convention Center

A well-run community helps increase sales, reduce churn, generate fresh content, and enhance the overall gaming experience. Managing a large-scale community is hard. It takes a lot of work and the right infrastructure to handle it. There are special challenges and opportunities that arise when dealing with a fast-growing online community.

Takeaway: In this lecture, discover what it takes to grow and sustain a rapidly-evolving, large-scale gaming community. Learn how to set up and manage your support programs and infrastructure; deal with hackers, troublemakers, and "grief" players; leverage player-generated content; and set up effective communication channels and feedback loops.

Lecture – Intermediate

Lessons Learned on Dungeon Siege and Other Random Stuff

Chris Taylor *See page 145 for bio*
Friday, March 7 • 9-10am
J2, Convention Center

Chris Taylor provides a look at the last 14 years of his career and talks about everything from working on his first game to starting his own game development company. Chris shares his experiences from when he was the only engineer on the team, to today, where the average development team can have more than 30 people. This change has brought about a massive shift in the way we develop games, from the game's fundamental design to the way the game is ultimately marketed to the public. Chris talks about almost every aspect of the game creation process, including team building, brand management, the developer-publisher relationship, and many other key elements that have a big impact on whether or not a game is ultimately successful in the market. Chris also touches on modern game design philosophies and how important it is to understand your customer, and why the mod community is playing a bigger role than ever in the way we make games today. Lastly, Chris talks about online games, and what he sees in the future, and why this frontier is one of the most important areas of game development left for us to explore as we press forward into the decade ahead.

Lecture – Intermediate

Managing During Tough Times

Robert Stevenson *See page 144 for bio*
Saturday, March 8 • 2:30-3:30pm
Almaden Ballroom, Hilton

Managing the production of a modern game can be a daunting task in and of itself, with all of the complexities in planning, scheduling, team dynamics and risk management. But what happens when things go awry, especially in a big way? Project cancellation, restructuring, and downsizing are alarmingly common in modern game and software development. Without focus, team leadership, and carefully laid plans, these can be some of the largest challenges any production manager can face.

production track

This presentation offers an in-depth overview of the various aspects of managing a development group going through trauma. With tough issues come tough solutions, ones that aren't discussed at local project management groups or taught in business school. By focusing on a definitive course of action that both protects business and developer interests through solid strategies, the project leader or production executive can mitigate the negative impact often surrounding such situations. In addition, early identification and proactive action can often raise issues and minimize problems before they occur. With effective techniques and understanding, production leads and their teams can rebound, rebuild, and help better shape not only their games but also the long-term business outlook.

Takeaway: The audience takes away an understanding of key external and internal issues that cause development groups to face downsizing, restructuring, and cost-containment. Real-world strategies to deal with issues such as maintaining employee morale, continuing efficient development, and rebuilding for turnaround are discussed. Additional discussion and ideas are presented on proactive and preventative strategies both from the product development and business management perspectives.

Intended Audience: This presentation is intended for all executive producers, senior program and project managers with fiscal responsibilities, and development teams working under them.

Lecture – Intermediate

Managing Large Teams

Craig Alexander
Friday, March 7 • 3-4pm
Almaden Ballroom, Hilton

The small, highly integrated game development team may be becoming a thing of the past. Bigger games require bigger budgets, longer production cycles, and, of course, larger teams. Larger teams, in turn, require a very different kind of management from that of the small team of yore. Craig Alexander explains how to successfully manage, motivate, and get the goods out the door with a large development team.

Roundtable – All

Managing Overseas Developers Effectively

Tom Sloper *See page 143 for bio*
Thursday, March 6 • 10:15-11:15am
D, Convention Center
Friday, March 7 • 9-10am
Santa Clara II, Hilton
Saturday, March 8 • 10:30-11:30am
E, Convention Center

With the rising cost of internal development teams and the concurrent growth of independent game development companies around the world, it makes increasing sense to have games created by international developers. This roundtable addresses the common fears about developing "outside one's direct control." Ways to take control and keep control are discussed, as well as effective early planning and coordination techniques. Discuss how to transfer documents, data, and builds; how to deal with time zones; and how to deal with language differences. Learn the importance of relationship building, and some how-to tips. Decide when to travel and when not to travel, and how to keep expenses down when travel is necessary. Discuss the special attention that must be paid in the crucial early and final stages of a game project.

Takeaway: There's no need to fear the word "international." The use of normal and sound development practices, together with a little extra attention to communication and coordination, will do the job. Successful games can be made with international developers at reduced cost.

Intended Audience/Prerequisite: Producers, associate producers, executive producers, project managers, and anyone responsible for the management of game development teams internationally.

Roundtable – All

Managing the QA Process

Chuck McFadden *See page 134 for bio*
Thursday, March 6 • 4:30-5:30pm
Santa Clara I, Hilton
Friday, March 7 • 10:30-11:30am
Santa Clara I, Hilton
Saturday, March 8 • 2:30-3:30pm
E, Convention Center

What does the QA department do, and is it doing what it should? Is there a better way to find bugs and give constructive feedback on games? This roundtable examines and discusses a variety of QA philosophies and how they can be applied in today's market. The discussion also explores ways to build QA teams from the ground up without falling into standard traps along the way. Some discussion will be devoted to improving the developer-tester relationship.

Takeaway: Attendees gain an understanding of QA's nature and how that nature might evolve in the changing marketplace. Attendees learn how to organize QA teams better and improve methods of communication between them and all members of development.

Intended Audience/Prerequisite: All game development professionals (not just QA people) can benefit from this roundtable. No prerequisite knowledge is necessary in order to contribute to the discussions.

Lecture – Intermediate

Master Cat Juggling in Just One Hour: Managing Designers

Carly Staehlin *See page 144 for bio*
Friday, March 7 • 4:30-5:30pm
Almaden Ballroom, Hilton

The session discusses the business of managing the design process and designers. Unruly egos, personality conflicts, differences of opinion, the "creative" process, "shooting for the moon," the inability to discuss issues in a practical way with engineers, and so forth plague design teams everywhere. Discovering how to build a successful design team that works well on its own and with the rest of your development staff can be a difficult challenge for any manager, not to mention a strain on the designers themselves. This lecture discusses practical examples for assembling design teams. It covers some different ways to create structure and processes that foster the trust and respect that could mean the difference between shipping on time with a solid, cohesive product, and falling prey to prima donna antics and all the pain that comes with them. The session emphasizes that making games is a business, and your business might do well to have its own Master Cat Juggler, someone who understands how to harness designer creativity without killing the creativity, themselves, or the designers.

Takeaway: Attendees come away from the lecture with practical examples of how to structure design teams, what to look for in designer candidates, and an understanding of the evolution of the role of the designer in games today.

production track

Intended Audience: Attendees that benefit most from this lecture are managers of development teams and designers and publishers that work closely with development groups.

Lecture – Beginner

My Matrix Experience: A Survival Guide to Working with Movie Licenses

Stuart Roch *See page 141 for bio*
Friday, March 7 • 12-1pm
Almaden Ballroom, Hilton

When working on the upcoming Enter the Matrix title, Shiny quickly learned that the *Matrix* property was no typical movie license. Rather than working within the usual licensed property model, Shiny was afforded an opportunity to work directly with the film's production company and directors rather than just the movie's licensing company.

While this offered Shiny an unprecedented level of access to the *Matrix* sequels and the support system therein, it also meant new challenges to both the game developers and the film production company in thinking outside the box. So unique was this direct approach to licensing that one Warner Bros. executive commented, "Either all movie licenses will be done this way in the future, or none ever will be again."

Through trial and error, both the film and Shiny learned new ways of collaborating in an attempt to create the closest marriage of film and game. Easy? Hell no! Challenging? Very! Worth it? The experiences are incredibly valuable for the future.

Based on production experience working on the Matrix project for the past two years, a good portion of which was spent on-location with the films, this lecture highlights the ingredients for a successful preproduction phase through to the main production cycle.

The presentation covers not only the issues facing a development team internally but also the challenges a team faces walking onto a Hollywood movie set. Working with talent, relationship management, and set etiquette are among the topics covered.

High-level overviews and pointers are provided for budgeting, planning, and executing typical movie-related asset gathering, including script approvals, motion capture, facial capture, cyber-scanning, ADR, costume design, prop design, set scanning, and digital photography.

With the marriage of film and game becoming more popular, this lecture will serve to help other teams avoid costly mistakes when working with a Hollywood production partner.

Takeaway: Plan preproduction properly, identify and avoid pitfalls during production, gain a general understanding of typical movie license–related assets, and learn the proper protocol of working on-location with the film production.

Intended Audience: This lecture is suitable for all audiences though it is mainly geared toward those in the industry without previous licensed product experience.

Lecture – Intermediate

Online Product Development Management: Methods and Madness

Starr Long *See page 132 for bio*
Saturday, March 8 • 2:30-3:30pm
A7, Convention Center

The speaker describes successful strategies for managing the development of a large-scale online game. Topics to be covered include design methodologies, engineering principles, scheduling, hiring, team size, personnel management, quality assurance strategies, budgeting, and launching a service. The speaker describes these topics from 10 years of personnel experience as both a QA tester and a producer. The speaker emphasizes the need for organization, simplicity, and, of course, the need to have fun.

Takeaway: Attendees should come away from the lecture with an understanding of how to manage a game successfully from beginning to end, with an emphasis on online games.

Intended Audience: Attendees that benefit most from this lecture are managers who are producing large-scale online games. However, anyone managing any kind of game can benefit from these lessons.

Lecture – All

Passion and Process: Managing Big Teams and Big Games

Don Daglow *See page 118 for bio*
Saturday, March 8 • 9-10am
J1, Convention Center

How can we combine passion and process to create great games that ship on time? The answer changes with every generation of hardware. Stormfront Studios had more than 50 team members working on the PS2 version of Lord of the Rings: The Two Towers this year. You have to manage big teams in ways that are fundamentally different from smaller projects, and we learned major new lessons in this product cycle. Armed with the Lord of the Rings experience, we are fundamentally changing our team structure and our approach to development to focus on large-scale projects.

This session shares an outline of those changes, and discusses other opportunities and traps that come with big-team development. The audience will help guide where the discussion is focused in the second half of the hour in order to hone in on specific relevant issues. This session is not about the detailed day-to-day project management process, which is one of the key building blocks required for big teams to succeed. It is about the big-picture process of getting teams of 25 people and up to operate as a single unit in a way that produces a great game that ships on time.

If you're working on a big team, it means that someone with money believes you're working on a hit that will sell big numbers. These projects now contain distinct phases, and the success of the big-team phase is heavily dependent on the quality and focus of the preproduction effort that precedes it. By the same token, a good plan and a good structure do not ensure a good result. The good processes that follow have to focus on both the people and the product in order to meet ever-more-ambitious goals.

production track

Most importantly, this session reinforces that all these organizational must-do elements have to happen without destroying the team's passion for the creative process. When you play a great game you can sense the creativity, energy, and commitment the team poured into the experience. There is no way that piece can be manufactured. It can only be inspired.

Takeaway: Passion and process can co-exist. Major projects unfold in phases, and the requirements for the team are different at each stage. Big team phases exist only when a publisher believes they have a potential hit. Overoptimism and corporate pressures create traps for teams. Good processes help avoid these traps. Clever managers can salvage bad plans, but this is never as good as starting with a good foundation in preproduction.

Intended Audience: Team leaders and project managers. Executives who wish to have a greater perspective and understanding of the development process. Project members who want to be a proactive force for quality and planning on their teams.

Lecture – Intermediate

Prooucing Programmers ano Programmer Teams

Steve Taylor *See page 145 for bio*
Saturday, March 8 • 4-5pm
J1, Convention Center

This presentation is an overview of the critical responsibilities, pitfalls, and opportunities facing a manager of programmers. In this lecture we describe the integration of programmers into a production group and detail key strategies to building productive and efficient programming teams. Topics covered include programmer specialization, improvement, crunch mode, supporting programmers in various roles and career stages, and more.

Takeaway: Attendees leave with a conceptual map of the growth of a programmer at a game development company. Programmer needs are explained in detail, and numerous examples of pitfalls and opportunities are given. Listeners take away specific strategies for improving programmer productivity in all stages of a programmer's career.

Intended Audience/Prerequisite: This lecture is appropriate for any manager with some responsibility over programmers. No programming knowledge is required, but some knowledge about game production and development teams is helpful.

Lecture – Intermediate

Proouction Issues for Small Teams in a Big Worlo

Jeremy Longley *See page 134 for bio*
Thursday, March 6 • 3-4pm
Almaden Ballroom, Hilton

Somewhere along the way over the last few years, some people have begun to think that the way to develop best-selling, hit games is to have huge teams of 50-plus people, carefully micromanaged with a one-to-three producer-developer ratio. They might be right, but for the rest of us trying to compete with these huge-budget titles with smaller teams (fewer than 20 people with one or perhaps two producers), the techniques required to manage the smooth development of a game that can compete at the highest level are completely different.

This lecture examines the essential components of a small team trying to produce a great game in a professional and timely manner, without the luxury and contingency of a great budget, from a practical point of view. Based on our experiences of Battle Engine Aquila, completed on two platforms with a team of 16, this presentation covers topics such as team structure, self-reliance of team members, overlapping skill-sets, planning contingency for when that cool (and seemingly essential) bit of technology doesn't quite come together, living without infinite money, and how to give yourself the best chance to get things right the first time.

Lecture – Intermediate

Reo Faction: Builoing a Successful PS2 Franchise

Alan Lawrance & Clint Ourso
See pages 132, 139 for bios
Thursday, March 6 • 4:30-5:30pm
A7, Convention Center

Shortly after Red Faction shipped in 2001, Volition began work on a sequel. We had great technology and a motivated team, but nearly a year later, Red Faction 2 seemed to be completely off-track. With only weeks to go before E3 2002, Volition had to turn the project around or miss the opportunity for significant exposure at the show. The team was forced to ask themselves the critical questions every major developer faces during the cycle: Is the design too ambitious? Is the schedule too short? Is the project being managed appropriately? In the end, good planning, hard work, and lots of talent saved the day. In this lecture, team members discuss the mistakes made in the months leading to E3 and the solutions that helped Volition ship a quality game ahead of schedule.

Sponsored by Criterion

Streamline the Pipeline: Criterion Software's RenoerWare, Alias|Wavefront's Maya, Metrowerks' Cooewarrior, NXN Software's Alienbrain

See addendum for speakers
Thursday, March 6 • 9-10am
C4, Convention Center
It is well known that middleware tools and technologies can vastly improve the productivity for certain development tasks. Now imagine the power of a total suite of technologies that work seamlessly together throughout the development cycle. This tutorial shows how the world's leading game development technologies can be integrated to help your entire team consistently deliver unique games on time and on budget.

Takeaway: How the integration of tools and middleware can improve your development cycle and help your team deliver the highest quality games on any platform.

Sponsored by NXN Software

Streamline the Pipeline: NXN Software's alienbrain, Criterion Software's RenoerWare, Alias|Wavefront Maya, Metrowerks Cooewarrior

See addendum for speakers
Friday, March 7 • 10:30-11:30am
C3, Convention Center
It is well known that middleware tools and technologies can vastly improve the productivity for certain development tasks. Now imagine the power of a total suite of technologies that work seamlessly together throughout the development cycle. This presentation will show how the world's leading game development technologies can be integrated to help your entire team consistently deliver unique, creative, higher quality games on time and on budget.

Panel – Intermediate

Surviving Crunch Time

David Braben, Louis Castle, Julian Eggebrecht, Tim Ryan
See pages 114-148 for bios
Thursday, March 6 • 4:30-5:30pm
J3, Convention Center

When weekdays and weekends blend together, workdays turn into 24-hour marathon sessions and the ever-

production track

oppressive milestone date looms increasingly larger in your mind, you are in what is universally called Crunch Time. It burns out developers, ends relationships and often leads to disheveled, irritable employees who spend all their time at work in spite of the need for a shower. Yet somehow we survive it. This assembled panel of industry veterans explores the causes, impacts and solutions and shares their experiences at surviving crunch time.

Roundtable – Intermediate

What About the Service? The Next Step Beyond Design and Development for Online Games

Gordon Walton *See page 147 for bio*
Thursday, March 6 • 11:30am-12:30pm
E, Convention Center
Friday, March 7 • 3-4pm
Santa Clara II, Hilton
Saturday, March 8 • 2:30-3:30pm
D, Convention Center

Everyone talks about game design and technical issues related to online games. But a dirty little secret of online gaming is that more than half the effort has nothing to do with the game or technology. Servicing customers, network infrastructure, billing, community management, web sites, and more actually take more resources and focus than the game itself. This is the roundtable for learning about these issues.

Takeaway: Learn the real issues, costs, and strategies for building and running the infrastructure a massively multiplayer game requires to be successful.

Panel – Intermediate

What Prodducers Shdould Knodw Abdout Audio

Clint Bajakian, Jeff Kliment, Nick Peck, J. White
See pages 114-148 for bios
Friday, March 7 • 9-10am
Almaden Ballroom, Hilton

This panel is deliberately intended for the Production track, with the goal of helping game producers understand the world of sound and music production and the interdependencies of the various members of the development team who must work together in order to make their games sound great. The objective is to illustrate why it's in the producers' best interest for sound and music to get started early in the development process.

Too often, audio considerations are left until it is too late to implement the necessary features and functionality to satisfy creative goals and make the soundtrack interesting. This causes a last-minute scramble to "fit sound in," which can have a negative impact on the schedule. It's not postproduction! Linear media such as film and television follow a traditional path of shooting the picture, then adding sound. While many of the techniques used in postproduction such as foley and ADR are now being integrated into game development, this approach cannot be applied in exactly the same way for interactive games. This presentation demonstrates tools and techniques, processes and pipelines, but the emphasis is on communication and teamwork.

ComputerGraphics

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programming keynote

Keynote
Little to Big: What Changes?

Dr. Frederick P. Brooks
Saturday, March 8 • 9-10am
A3, Convention Center

Programming effort in a start-up (company or project) usually begins with a solo programmer and grows to a small team. Then, with luck, it grows to a large team. And radically changes character! Here lurk all the difficulties of software engineering.

Growth is gradual, and change often imperceptible, until suddenly the project is in trouble. Process discipline has become necessary, often well before it was developed.

What discipline? When? How, without dampening creativity?

Frederick P. Brooks
Frederick P. Brooks Jr. received the A.B. in physics from Duke University in 1953, and the Ph.D. in computer science from Harvard University in 1956, under Howard Aiken. Dr. Brooks joined IBM Corporation, working in Poughkeepsie and Yorktown, New York, from 1956 to 1965. He was an architect of the Stretch and Harvest computers and then was manager for the development of IBM's System/360 family of computers and OS/360 software. For this work, he received a National Medal of Technology. In 1957, Fred and Dura Sweeney invented a Stretch interrupt system that introduced most features of today's interrupt systems. Fred coined the term "computer architecture". His system/360 team first achieved strict compatibility, upward and downward, in a computer family. His early concern for word processing led to his selection of the 8-bit byte and the lowercase alphabet for the System/360, engineering of many new 8-bit input/output devices, and providing a character-string datatype in PL/I. In 1964, Fred founded the Department of Computer Science at the University of North Carolina at Chapel Hill and chaired it for 20 years. Currently, he is Kenan Professor of Computer Science. His principal research is in real-time, three dimensional, computer graphics, "virtual environments". His research has helped biochemists solve the structure of complex molecules and enabled architects to "walk through" buildings still being designed. He is pioneering the use of force display to supplement visual graphics. Dr. Brooks distilled the successes and failures of the development of Operating System/360 in *The Mythical Man-Month: Essays in Software Engineering* (1975; enlarged Anniversary Edition, 1995). He further examined software engineering in his well-known 1986 paper, "No Silver Bullet." His major work is the research monograph, Computer Architecture: Concepts and Evolution, with Professor Gerrit Blaauw. Fred served on the National Science Board and the Defense Science Board. He is a member of the National Academy of Engineering, the American Academy of Arts and Sciences, and the National Academy of Sciences. He has received the National Medal of Technology, 1999 ACM A.M. Turing Award, the Bower Award and Prize of the Franklin Institute, IEEE Computer Society's McDowell and Computer Pioneer Awards, the ACM Distinguished Service Award, the AFIPS Harry Goode Award, and an honorary doctorate from ETH-Zurich.

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June 24 —SAN FRANCISCO — Editorial boutique Phoenix Editorial has launched a new effects and design division called Bonfire. more
EDITING: 'THE OSBOURNES'
MTV's most successful show ever held some interesting post production challenges more
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programming track

Successful game programmers develop robust systems and solid core technologies, enabling designers and artists to create new experiences that push the envelope technically and artistically. The Programming Track examines the intricacies of implementing complex systems as well as management of the interactions between those systems.

Lecture – Advanced

Advanced Real-Time Illumination Techniques

Nathaniel Hoffman *See page 126 for bio*
Thursday, March 6 • 9-10am
A4, Convention Center

The interaction of light with objects is at the core of computer graphics. Traditionally, simplistic lighting, shading and illumination models have been used in real-time rendering. Methods for handling more complex materials (BRDFs) have been introduced over the last few years, but materials are just part of the total equation. The light environment is still usually modeled as a collection of point sources and complex light/object interactions are not handled. These limitations often prevent the resulting images from achieving photorealism. Recent advances in illumination algorithms (polynomial texture maps, spherical harmonic analysis), graphics hardware and APIs (Direct3D 9.0, OpenGL 2.0) now enable us to handle rich light environments and light/object interactions in real time. This talk discusses several mathematical tools, algorithms, and techniques which can be used to handle arbitrary light environments and model complex light/object interactions. These techniques use the latest API and hardware features to render complex scenes at high frame rates. The limitations of the various techniques are discussed, as well as future directions to overcome some of these limitations.

Takeaway: Attendees learn about: The deficiencies of currently-used illumination models; powerful mathematical tools such as spherical harmonic analysis which can be used in developing illumination algorithms; several illumination algorithms and techniques which enable rendering complex light environments and light/surface interactions at high frame rates; and how to implement these techniques using modern hardware and APIs such as Direct3D 9.0.

Intended Audience: This lecture is intended for programmers with a basic understanding of illumination theory and modern graphics hardware and APIs.

Roundtable – Intermediate

Agile Development Roundtable

Tom Leonard *See page 132 for bio*
Thursday, March 6 • 4:30-5:30pm
Pacific, Hilton
Friday, March 7 • 10:30-11:30am
Pacific, Hilton
Saturday, March 8 • 4-5pm
Pacific, Hilton

Over the past few years "Agile" development methodologies, most prominently Extreme Programming, have been gaining acceptance in some fields as effective ways to work under tight budgets and uncertain requirements. Agile development is a lightweight, people-centric form of development designed to be collaborative, exploratory, iterative, and flexible. This roundtable examines the prominent aspects of agile development and analyzes how they interact with the demands of making games. This roundtable discusses how the core tenets and techniques of agile development apply, or fail to apply, in game programming. While some methods can work well, like refactoring, minimalist design, and iterative delivery, others are more controversial. Pair programming, collective code ownership, test first coding, and delayed optimization are all contentious issues among game developers. Participants will discuss the important issues lying in the tension between agile processes and research-like development, art or marketing production pipelines, contractual Gantt charts, and specialist programmers. Contributors can share experiences about their own successes and failures in applying agile methodologies. This roundtable is aimed at coders or designers in the trenches who have used or have an interest in using agile process and methodology to improve their game.

Roundtable – All

AI in Computer Games Roundtables

Eric Dybsand, Neil Kirby, Steve Woodcock
See pages 114-148 for bios
Thursday, March 6 • 3-4pm
Plaza, Pacific, Santa Clara I, Hilton
Friday, March 7 • 12-1pm
Plaza, Pacific, Santa Clara I, Hilton
Saturday, March 8 • 10:30-11:30am
Plaza, Pacific, Santa Clara I, Hilton

On day one, each AI roundtable session provides the GDC attendee with the opportunity to discuss general AI related topics with other developers. The sessions remain small in size to promote discussion. All topics of interest in the field of computer game AI design, development, and implementation are available for discussion.

On day two, the roundtables focus on the topics of "AI in RTS/Wargames" (moderated by Eric Dybsand), "AI in RPG and Adventure Games" (moderated by Steve Woodcock) and "AI in First Person Games" (moderated by Neil Kirby). Each of these unique AI-RTs focus on computer game AI issues that are specific to the genres above.

On day three, the roundtable topic becomes "AI for Beginners" for the purpose of encouraging those who are new to AI in games to ask questions, obtain answers, and engage in discussion on AI related topics at a more comfortable level. This discussion encompasses any topic of computer game AI and is intended to provide information to those people in game development who are unfamiliar with AI in computer games.

Intended Audience: The General AI-RTs are for anyone interested in game AI discussion. Genre Specifc AI-RTs are

for developers of games in those genres. The Beginners AI Discussion is for game AI beginners.

Sponsored by Nvidia

All You Can Eat Polygons: Without the Fat

Doug Rogers *See page 141 for bio*
Friday, March 7 • 9-10am
A1, Convention Center

The most compelling models have high polygon counts, whether they be painstakingly modeled or scanned from real world objects. However, rendering interesting models with millions of polygons is still not practical in real time. Furthermore, game developers target a wide breadth of hardware capabilities, and at the lower end, target hardware platforms can be significantly underpowered. Taking a high polygon count model and encoding the dense geometry into textures reduces the complexity of the model, while preserving fine detail, like the pores on skin, for example. The original mesh is simplified and combined with the textures to represent the original model. Using the simplification technique more aggressively, multiple levels of detail can be generated automatically. By modifying the characteristics of the simplification process, hardware friendly progressive meshes can be generated. Topics include:

- Algorithms
- Normal Maps
- Encoding Geometry into Normal Maps
- Simplification—Tradeoffs and Problems
- Geometry Optimization
- Texture Coordinate Generation
- Combining Simplified Geometry
- Progressive Meshes
- Multiple Levels of Detail

Takeaway: Attendees learn methods to efficiently prepare and render complex geometry with per-pixel lighting through geometry simplification and the encoding of dense detail into normal maps.

Intended Audience: This course is targeted at programmers interested in rendering massively complex geometry, without incurring the expected polygonal costs. The attendees should have a basic knowledge of computational geometry.

Lecture – Intermediate

Animation Blending: Achieving Inverse Kinematics and More

Jerry Edsall *See page 120 for bio*
Thursday, March 6 • 3-4pm
A3, Convention Center

Traditional inverse kinematic (IK) systems attempt to solve a fundamental artistic problem with math. While the math may technically bring a character's leg to the correct position, it rarely imparts a sense of weight or timing. In this lecture, a technique for creating IK effects without these problems is being presented. The method uses only artist-created animation that is blended to perform IK. By using animation only, the artist retains control of the entire process. The character can now struggle as he runs uphill while shifting his weight and speed, all without losing accuracy of the foot positions which match the grade of the ground. This lecture illustrates the practical applications of multi-axis blending, blend hierarchies and priority blend trees as well as the pitfalls of using such a system in the real world. The audience is being presented with the animation system used in Microsoft Fasa Studio's MechWarrior engine as well as the evolution of this system into further titles.

Takeaway: The audience is presented with the fundamentals of animation blending and advanced blending techniques. Topics of discussion include: designing animation data for blending, blending algorithms, tool support, and optimization of animation data.

Intended Audience/Prerequisite: This lecture is intended for programmers who have implemented animation systems for character movement. Familiarity with interpolation techniques and inverse kinematics is recommended.

Lecture – Intermediate

Animation System Implementation: What Works and What Doesn't

Jake Simpson *See page 143 for bio*
Friday, March 7 • 9-10am
J3, Convention Center

Animation systems are simple in initial conception and implementation, but once you start adding in state of the art features, facial expression, multiple animations running on the same bones, attachment points, world motion, per polygon collision, and so on it can get very complicated very quickly. We'll take a look at implementation of some of these systems and look at what works, what doesn't, possible approaches, what you can use these systems for, and some reflection on past mistakes.

Lecture – Intermediate

Audio Programming for Very Large Projects

Dave Ranyard *See page 141 for bio*
Friday, March 7 • 12-1pm
F1, Convention Center

Audio coding has come a long way since the beeps and bleeps of the old ZX Spectrum. Nowadays, support is required for many different clients of game development, from the obvious (sound designers, musicians, game designers) to the nonobvious (animators, artists, lip-synchers as well as non-audio coders and even scriptwriters). In addition, audio content has increased with particular attention focused on foley effects, vehicles, weapons, music, dialogue, and cutscenes, all of which need database support and tools to get them into the different parts of the game system.

As games get bigger, system resources get squeezed. More and more performance is expected from fewer resources. The audio programmer must develop imaginative and creative ways of getting "the most out of the machine" while still supporting all the clients outlined above.

How do we build flexible audio systems that meet all the requirements of very large projects? This lecture draws from experience developing the audio engine and database support for Sony Computer Entertainment's The Getaway. It discusses some of the major problems encountered and how they were solved. It examines how a flexible set of sound controls were developed which could be attached in any number of ways to in-game objects and parameters. This allowed one audio system to be developed which solved many varied in-game requirements.

Lecture – Intermediate

Automated Testing of Massively Multiplayer Games: Lessons Learned from The Sims Online

Larry Mellon *See page 136 for bio*
Friday, March 7 • 9-10am
A3, Convention Center

The development and operation of massively multiplayer Persistent State Worlds has proven to be difficult. The distributed nature and scale of the target system increases the complexity of debugging the implementation, while the size, scope and constantly evolving nature of the feature set incurs a high regression cost. The Sims Online encountered stability and scalability issues early in the development cycle. To address these major cost drivers, TSO shifted to a development

approach revolving around a set of automated testing tools. Portions of the TSO game client are used to assemble a test client that interacts with servers in the normal manner A scripting system is attached to this test client at the same entry points as the GUI, using a Presentation Layer to provide a semantic abstraction of the UI's functionality. Scripts may thus mimic a series of user actions. Remote process control and synchronization primitives add single-script control for multiple clients. A single, data-driven test client thus supports developer pre-checkin testing, QA feature regression and load testing. This paper addresses the design, implementation and fielding of such tools. The effects of introducing automated tests in the day to day development and debugging of a massively-multiplayer game are discussed, while lessons learned illustrate the issues in fielding such a tool for a large, constantly evolving distributed system.

Takeaway: The audience should leave with the ability to rapidly convert any Internet game client, or any single player game, into a test client with strong regression and debugging capabilities. Strategies for increasing the testability of a system via simple abstractions are presented, resulting in increased stability during fielding and lower development costs. Through both of the above, the audience encounters specific examples of problems encountered and lessons learned while implementing and fielding TSO's distributed system toolkit.

Intended Audience: Programmers benefit from the developer-configured automated testing tools, while QA and project managers will be interested in the regression cost and time implications.

Sponsored by ATI

Beginning Shader Programming with RenderMonkey

Natasha Tatarchuk *See page 145 for bio*
Thursday, March 6 • 4:30-5:30pm
C2, Convention Center

Programmable graphics shaders have been a feature of high-end graphics chips for a number of years. With the introduction of the Radeon 9000 series from ATI, this functionality is now available on the mainstream consumer PC.

The utilization of shader techniques in game development is helping raise the image quality and user experience to the next level and is already a required feature in every game engine.

In order to help developers overcome some of the challenges creating, using and integrating shaders into their titles, ATI Technologies has developed a family of tools, the RenderMonkey toolset.

This workshop introduces the developer to the RenderMonkey toolset and through a number of simple worked examples show how the tools can be used by both programmers and artists in the game development process.

Takeaway: Attendees learn the power of fast shader prototyping through the RenderMonkey IDE and gain an introduction to the DirectX 9.0 shader models.

Intended Audience/Prerequisite: Graphics programmers and technical artists who have familiarity with the techniques and concepts surrounding programmable graphics shaders.

Sponsored by Microsoft

Best Practices For DirectX 9 Audio Programming

Skip McIlvaine *See page 136 for bio*
Thursday, March 6 • 3-4pm
A1, Convention Center

This talk tells you everything you need to know about DirectX 9 audio programming.

Lecture – Advanced

Beyond Bouncing Boxes: The Physics of Things That Bend and Break

Jeff Lander & James O'Brien
See pages 130, 138 for bios
Thursday, March 6 • 9-11am
A3, Convention Center

This talk discusses the details of a simple to implement finite element method for modeling deformable solids. Although the mathematical underpinnings of continuum mechanics will not be ignored, the main concern of the talk focuses on how one goes about implementing and using the techniques to generate interesting behaviors. In addition to basic elastic deformation, more advanced techniques for plastic deformation, fracture, and modal analysis are also covered. The talk also emphasizes integration of the visual and dynamic models, as well as integration with other kinematic and dynamic elements in a game.

Takeaway: An understanding of a simple finite element method that can be used to model things that bend, jiggle, twist, break, shatter, and tear.

Intended Audience/Prerequisite: This session targets game programmers with some experience in rigid body and particle physical simulation. A solid mathematical background will be helpful.

Lecture – Intermediate

Building AI Sensory Systems

Tom Leonard *See page 132 for bio*
Friday, March 7 • 9-10am
J1, Convention Center

This presentation examines the process and value of constructing AI sensory systems from gathering requirements to game design to delivery. Efficient, high-fidelity AI sensory models can be an invaluable tool for improving a game player's experience, enabling game designers and programmers to construct more interesting gameplay scenarios. A well-designed sensory system can be leveraged as a central location for the tuning and optimization of information gathering, as a knowledge propagation tool, and as a replacement for spatial triggering mechanisms. Such systems can also be a nest of tuning problems from sensitivity issues to overly subtle behavioral shifts. Using examples from several games, the discussion examines the design and implementation of a vision and hearing model. The presentation then explores how the basic implementations presented can be tuned and

controlled by game programmers and designers. From there, the discussion examines the optimization problems present in these systems and a set of available solutions. The challenges and opportunities of integrating the senses into the rest of an AI system are considered, including limitations that may be imposed in larger game architectures, communicating to the player the state of non-binary sense states, leveraging a sensory system to augment team and squad behaviors, and the limits of the senses metaphor as a game construction tool.

Lecture – Advanced

Building An Object System: Features, Tradeoffs, and Pitfalls

Alex Duran *See page 120 for bio*
Friday, March 7 • 12-1pm
A3, Convention Center

Game object systems are coming into their own. Most of us use them in one form or another, but only recently have we begun sharing examples, trying to increase our common knowledge. An object system designed for one game is often not applicable to another. In some cases, a few changes are sufficient to make it applicable. In other cases, a completely new system must be designed and implemented. When evaluating existing systems or designing new ones, it is useful to have access to a set of high-level implementations that are used to structure object systems as a whole, and a set of low-level features for which different games have different requirements, and for which some implementations are better suited than others. Each game design requires some features more than others, and each implementation supports some of those features better than it supports others.

This presentation covers a set of implementations and a set of features. Implementations covered include C++ class hierarchies, property-centric aggregate systems, and object-centric aggregate systems. Features covered include mutability of archetypes at run-time, event-driven notification when values change, increased speed, reduced memory usage, reduced overhead of object creation, and designer ease of use. Examples are drawn from the systems used in Unreal, Deus Ex 2, and Thief 2. It also covers some implementations used by other systems, using information provided by the developers of those systems.

With the information provided in this presentation, developers should have an easier time modifying existing object systems to meet their needs by adding additional implementations into their existing framework, to better support those features whose support in the existing system is weak.

Takeaway: Attendees takeaway a better understanding of the features that object systems can have. Attendees take away a set of implementations that are available for use in object systems. They understand the benefits and drawbacks of these implementations and are better able to analyze existing or proposed systems to see how well those systems implement features that they need for their game designs. They are better equipped to design new object systems in such a way that their game design is best supported.

Intended Audience: Programmers who must modify existing object systems or create their own. It will also benefit those designers concerned with the features that the object systems they use implement.

Roundtable – All

By the Books: Solid Software Engineering for Games

Noel Llopis *See page 132 for bio*
Thursday, March 6 • 10:15-11:15am
Pacific, Hilton
Friday, March 7 • 10:30-11:30am
Plaza, Hilton
Saturday, March 8 • 9-10am
Plaza, Hilton

Games are getting to be more and more complex projects, involving many people, long schedules, and large budgets. The traditional method of coding "on the fly" (also called "code-like-hell" and "hack-and-slash") doesn't scale well to projects of this size. In this session we discuss what software engineering techniques are currently being used across the game industry. We'll talk about what works, what doesn't, and what could be done differently.

Takeaway: This session aims to increase the awareness of software engineering in the games industry, discuss people's experiences, and hopefully give everybody new ideas on how to improve their development.

Intended Audience: Anyone interested in software engineering: both those who are successfully applying software engineering techniques, and those who want to improve their development process.

Lecture – Beginner

The Continuous World of Dungeon Siege

Scott Bilas *See page 115 for bio*
Saturday, March 8 • 10:30-11:30am
J2, Convention Center

One of the most technically challenging requirements of Dungeon Siege was to deliver a "continuous world," never breaking immersion with loading screens from the beginning of the game to the end. This was made infinitely more complicated by another requirement: 8-way multiplayer, where people could play anywhere in the world, together or separately, joining and leaving as they pleased. Tack onto that about 60,000 objects placed in each of the worlds, 30 hours of gameplay, a relational coordinate system to maintain floating point accuracy, a fading system to show smooth transitions between dungeon and farmland, and a last minute "absolutely must have" feature request for teleportation, and the result is bound to be a seriously twisted piece of code.

This is the story of how we conceived, designed, built, rebuilt, grokked, redesigned, and rebuilt again the multi-frustum, multi-player, multi-threaded, continuous world engine for Dungeon Siege. The main part of the talk is technical, discussing and demoing how the major parts of the engine work and interoperate. Special attention is paid to the evolution and steadily increasing complexity of these systems. The second part of the talk covers the design and process implications, and how this innocent sounding feature challenged our basic notions of game development and turned our entire world inside out.

Takeaway: Attendees learn at a high level how Dungeon Siege's unique species of continuous world operates, and the shift in thinking required to work with it. They will see how the terrain engine, game object database, and world streamer interact, and the effect that has on level design and content placement. They will learn about the development team's successes and failures in building this engine over the years.

Intended Audience/Prerequisite: No specific prerequisite knowledge is required, but there will likely be a slight slant towards engineers, as the speaker is an engineer. Attendees are encouraged to bring their sense of humor.

programming track

Lecture – Advanced

Custom STL Memory Allocators

Pete Isensee *See page 128 for bio*
Saturday, March 8 • 4-5pm
J3, Convention Center

Game developers are notorious for wanting to control memory allocation down to the last byte, especially on platforms with fixed memory sizes. Developers are always in search of ways to squeeze out that last little bit of performance or track down a nasty memory leak. It used to be enough to provide malloc and free routines, or override global new and delete. Venturing into the land of the C++ Standard Template Library (STL), things get much more interesting. Now programmers can use their own custom memory allocation techniques on a per-container basis. Not only that, the allocator strategy for the STL lets developers do some things that might never have been considered before, like using stack memory for containers. This talk demonstrates how to take advantage of custom STL memory allocators. This session goes through a number of examples including code and demonstrations, and also examines what types of performance gains programmers can expect with various tactics.

Takeaway: This talk is designed to show the power and flexibility of the allocator model in the STL. Come away understanding allocator design, the tradeoffs, and important issues regarding various C++ implementations. See how to plug in game allocators to manage container memory much like you manage everything else. At a higher level, gain a better insight of how to leverage C++ templates to your advantage when it comes to game optimization.

Intended Audience/Prerequisite: For advanced STL programmers. We won't be spending time on the basics. Assumes experience using containers plus a good knowledge of game allocation issues. Assumes you've read 20.4.1 of the Standard.

Lecture – Advanced

Designing a Portable Shader Library for Current and Future API's

Alex Vlachos *See page 146 for bio*
Friday, March 7 • 10:30-11:30am
A3, Convention Center

Generalizing a shader library for real-time graphics has become a necessity. The days of hard coding render state, shaders, and vertex formats has long passed. A robust shader library that supports the bleeding edge in shader technology while also falling back to less powerful hardware is a problem common to both PC and console developers.

The internal shader library that ATI's demo team uses will be the case study on how to generalize a shader library for games. This session will discuss artist usability, preprocessing, and runtime issues they have encountered in implementing their flexible shader library.

An important part of creating a generalized shader library is providing a simple, usable interface to the artists. The custom Maya material plug-in used by the team's artists will be discussed in detail.

After the art has been created and preprocessed, there are many runtime decisions that must be made. In the case of PC development, selectively creating vertex buffers that match the current installed graphics card is crucial. Developing for 2-year-old hardware will severely limit the creativity of the visuals. Enough thought must be put into purposely preprocessing redundant geometry so the runtime engine has enough data to selectively load exactly what is needed, no more, no less.

In the case of console development, falling back to older hardware usually isn't an issue, but cross-platform development is. To make the best use of graphics memory, each shader's associated vertex buffers must contain the minimal data necessary. Many games have one or two vertex formats they use globally which severely hinders their ability to add new shaders.

All of these issues will be addressed in the presentation. Demos from the previous two generations of hardware will be shown with detailed explanations of how the shader library allowed the visuals to be created with minimal programming overhead.

Takeaway: Attendees gain insight into a method of managing shaders and associated state in a very generalized way. The entire pipeline from artist interaction to runtime managing of stated will be brought together and centered around a robust shader description file.

Intended Audience/Prerequisite: A graphics programmer who is intimately familiar with DirectX 8 or later. Developers who have already written a shader library or are planning to do so in the near future will benefit the most.

Sponsored by Nokia

Developing Games for N-Gage™ from Nokia

Illka Raiskinen *See page 141 for bio*
Thursday, March 6 • 10:15-11:15am
A8, Convention Center
Friday, March 7 • 10:30-11:30am
A8, Convention Center

Learn how to develop games for the N-Gage™ platform. Presentation will include detailed technical specifications and insights from developers who have developed games for N-Gage™. We'll also cover the tools that are available as well as the channel to get your games to market. Members of the N-Gage™ technical team will be on hand to answer questions during and after the session. And attendees receive Nokia's compendium of technical resources for game developers.

Takeaway: Attendees learn how to develop games for the N-Gage™ platform.

Intended audience: Attendees need only be interested in learning more about developing applications for N-Gage™.

Lecture – Intermediate

Displacement Mapping

Michael Doggett & Tom Forsyth
See pages 120, 122 for bios
Thursday, March 6 • 4:30-5:30pm
J2, Convention Center

programming track

Displacement mapping is a powerful technique for adding detail to three dimensional objects and scenes. This lecture gives a complete overview starting with the theory and going right through to the practical problems of migrating content from 3D modeling packages into games. Displacement mapping uses a two dimensional map of displacement values to modify the surface structure of a model. This map can be reapplied to multiple models in the same manner as texture mapping adds color detail to surfaces. The basic concepts of scalar and vector displacement mapping are introduced and their algorithms presented. Adaptive displacement mapping ensures that extra polygons are added only where new surface details are introduced. Recent algorithms for adaptive displacement mapping are discussed along with their implementation. New graphics hardware that performs displacement mapping is also discussed and the API programming required to use it. For graphics hardware that doesn't support displacement mapping scalability techniques are shown. To make use of displacement mapping in games the techniques for migrating content over from 3D applications such as 3D Studio Max and Maya are discussed. One source of displacement maps is generating them from high complexity models and then extracting a lower complexity base mesh and displacement map. Techniques for this extraction of displacement maps are presented.

Takeaway: Attendees learn the algorithms and their implementations for adding displacement mapping to 3D objects. Learn how to use new displacement mapping features found in the DirectX 9 API to drive the latest hardware and how to scale these algorithms for platforms without hardware acceleration. Attendees understand how to generate displacement maps from high polygon models and use 3D authoring packages.

Intended Audience: This lecture is aimed at game programmers and artists looking to improve the visual appearance of their models using displacement maps running in software and hardware.

Sponsored by Intel

Enhanced Tuning Assistance and Multithreading Support in the VTune Analyzer

Gary Carleton *See page 116 for bio*
Thursday, March 6 • 4:30-5:30pm
C1, Convention Center

Performance tuning can be thought of broadly as a 2 step process: 1) Identify performance issues, and 2) change something to reduce them. This session will describe and demonstrate some technology aimed at the more difficult of the 2 steps, deciding how to fix a performance problem. The technology uses performance data gathered while running the game to generate ideas on what the programmer can do to speed it up. It is based on experienced gained in tuning apps over the last several years. This technology is implemented as an enhancement to the existing Tuning Assistant in the VTune analyzer. Most of the session will be spent in analyzing a sample application to make it run faster. We will also discuss some processor architectural aspects to tuning multi-threaded apps.

Takeaway: The takeaway is that there is help in not just finding performance bottlenecks, but in trying to come up with solutions to performance problems. Many tools use varying technologies to identify performance problems but the more difficult part of the tuning process is figuring out how to make those bottlenecks faster once they are found. In addition, some common architectural performance pitfalls in tuning multi-threaded apps will be discussed including cache issues related to stack alignment, false sharing and spin-wait loops.

Lecture – Intermediate

Fast Proximity Queries for Large Game Environments

Ming Lin *See page 132 for bio*
Saturday, March 8 • 10:30am-12:30pm
A3, Convention Center

The problems of collision or interference detection between two or more objects in dynamic environments are fundamental in computer graphics, robotics and computer simulated environments. These problems have been extensively studied in the literature. However, few efficient and accurate algorithms are known for large, complex dynamic settings, especially those encountered in the game environments. We will present fast algorithms for contact determination and interference detection between geometric models undergoing motion, as well as processing and management of large number of objects in the environment. The algorithms make use of temporal and spatial coherence between successive instances and hierarchical data structures. Their running time is a function of the motion between successive instances. The main characteristics of these algorithms are their simplicity and efficiency. They have been implemented. We will demonstrate their application in interaction with walkthroughs, multi-body simulation and physically-based simulation. A major subset of these implementations, including I-Collide, RAPID, V-Collide, PQP, SWIFT/SWIFT++, PIVOT and DEEP are available as part of the collision detection packages available at the UNC-CH website.

Intended Audience: This lecture is targeted toward game designers and programmers who have done some implementation of 3D geometric algorithms and who want to learn more about contact determination problems for physics-based modeling in real-time simulation or game environments. The intended audience should have some basic knowledge of geometric operations and algorithmic design, as well as familiarity with basic 3D graphics.

Sponsored by Premier Press

First Steps to Vertex and Pixel Shader Programming with DirectX

Wolfgang Engel *See page 120 for bio*
Friday, March 7 • 10:30-11:30am
C4, Convention Center

This presentation provides a step-by-step approach to the knowledge developers need to begin programming vertex and pixel shaders with DirectX. It covers simple to slightly advanced examples of vertex and pixel shaders. Each topic is explained extensively.

Intended Audience: This session is for beginning game developers.

Takeaway: After the presentation C/C++ programmers will be able to write their first shader programs.

Lecture – Intermediate

Five Physics Simulators for a Human Body

Chris Hecker *See page 15 for bio*
Thursday, March 6 • 11:30am-12:30pm
A3, Convention Center

During development of the movement algorithms for an interactive dynamically animating human figure for a rock climbing game, Chris became dissatisfied with traditional Inverse Kinematics techniques. Chris turned to more advanced constrained rigid body physics algorithms to add consistency and believability. Chris implemented and tested four algorithms: explicit integration with Lagrange multiplier constraints, implicit integration with penalty constraints, explicit integration with the Composite Rigid Body Method, and finally implicit integration with

programming track

the Recursive Newton-Euler Method. Chris will cover the four algorithms, discuss pros and cons of each, and then talk about a fifth simulation algorithm, its properties, and why it is needed to solve the simulation problem for real-time games.

Lecture – Intermediate

Frame Buffer Postprocessing Effects in DOUBLE-S.T.E.A.L (Wreckless)

Masaki Kawase *See page 128 for bio*
Thursday, March 6 • 11:30am-12:30pm
J2, Convention Center

DOUBLE-S.T.E.A.L (called Wreckless in the US and Europe) on XBox uses frame buffer postprocessing to very impressive effect in both realtime gameplay and during the in-engine playback. Effects range from heat shimmer, light flares, and depth-of-field during gameplay to exotic replay modes like infrared, posterization, edge detection, embossing, contrast enhancement, film grain, TV interference, and more. In this talk, Kawase will discuss the different techniques used in detail, how they were implemented, their performance implications, and the issues encountered using frame buffer postprocessing on XBox.

Roundtable – Advanced

Game Architecture

Dave Weinstein *See page 147 for bio*
Thursday, March 6 • 9-10am
Plaza, Hilton
Friday, March 7 • 3-4pm
Pacific, Hilton
Saturday, March 8 • 2:30-3:30pm
Pacific, Hilton

The architecture of the game and game engine are of concern only to the engineers. Games with good architectures do not noticeably sell better than those with flawed architectures, but they are easier to develop, and take less of a toll on the development staff. What types of code architectures are in use today? What are the benefits and drawbacks of each? What architectures work best on what platforms? How does networking complicate architecture? How do tools and scripting interact with the architecture? Can you justify architecture costs to the producer or management?

Takeaway: Attendees come away with an understanding of the different types of architectures, their tradeoffs and how tradeoffs vary based on platform requirements. They understand how tools, networking, and scripting affect the architecture.

Intended Audience: Programmers who will be involved in the architecting of a new code base, or who are interested in that process. Producers may find it useful, but the discussion is expected to be quite technical.

Sponsored by Intel

Game Development from Handhelds to PCs Using Intel Performance Libraries

Ken Dillinger & Gopi K. Kolli
See pages 118, 130 for bios
Friday, March 7 • 9-10 am
C4, Convention Center

This session teaches the Intel Integrated Performance Primitives (Intel IPP), an API for image processing, graphics, computer vision, and small matrix operations suitable for geometry calculations, as well as specific functions for video, audio, and JPEG. Intel IPP is optimized for the broad range of Intel microprocessors: Intel Pentium 4 processor, the Intel Itanium architecture, Intel Xeon processors, and Intel PCA application processors based on the Intel XScale microarchitecture. The Intel Graphics Performance Primitives (Intel GPP) provide a rich and powerful set of 3D graphics functions optimized for the Intel Personal Internet Client Architecture (Intel PCA) Applications Processors.

Takeaway: Intel Performance Libraries offer high performance and flexible use for your quick turn software development.

Intended Audience: For C++ programmers with limited or no previous knowledge of Intel IPP or Intel GPP.

Roundtable – Intermediate

Game Object Structure: Bringing It All Together

Kyle Wilson *See page 148 for bio*
Thursday, March 6 • 11:30am-12:30pm
Plaza, Hilton
Friday, March 7 • 3-4pm
Plaza, Hilton
Saturday, March 8 • 4-5pm
Plaza, Hilton

Most every modern game engine has had some notion of a game object. A game object may be an animated creature, a particle system explosion, an invisible box that sets off a trigger when entered, or an invisible hardpoint to which a missile attaches. In general, though, there will be a game object class which exposes an interface, or multiple interfaces, to the various systems that handle collision, rendering, triggering, sound, etc.

There are as many approaches to game object structure as there are game engines. This roundtable offers an opportunity for engine developers to come together and discuss the different design choices they've made in the games they've developed, and the benefits and costs resulting from those choices. Issues to be discussed include internal object structure, object lifetime management, object interfaces, persistence, the use of inheritance and aggregation, and the pipeline by which objects are translated from data on disk to runtime structures in memory.

Takeaway: Attendees learn about other developers' experiences in engine design at the game object level. They learn about the benefits and costs of different structural design decisions, and are exposed to new ideas that they can put to use in their own future engine architecture.

Intended Audience: This roundtable is targeted at experienced core engine developers, the authors of the code that binds together AI, physics, graphics and sound subsystems into a coherent whole.

programming track

Lecture – Intermediate

Geometric Algebra: The Framework for Geometric Computations

Daniel Fontijne *See page 122 for bio*
Saturday, March 8 • 12-1pm
A4, Convention Center

Geometric algebra is a powerful framework that will change the way computer science handles geometry. It unifies and enriches many techniques that are now considered separate. This lecture introduces the audience to geometric algebra, while at the same time showing how to expand and refine traditional geometric techniques. This includes linear algebra, complex numbers, quaternions and Pluecker coordinates. The session ends with details on actual implementation of geometric algebra and a comparison of the performance of recent geometric algebra implementations to that of straightforward linear algebra.

Takeaway: Attendees learn that there is a new, powerful way of doing geometry. Geometric algebra helps you better understand geometry and gives you many new techniques. Suggestions for implementation are given, and performance of recent and future geometric algebra implementations are discussed.

Intended Audience/Prerequisite: This lecture is intended for programmers that have to deal with geometric problems in their day-to-day work, and thus a basic knowledge of linear algebra and its use for geometry is assumed. Some knowledge of quaternions, complex numbers and homogeneous/Pluecker coordinates will allow for more 'aha'-experiences.

Sponsored by Nvidia

Graphics Pipeline Performance

Cem Cebenoyan & Matthias Wloka
See pages 117, 148 for bios
Friday, March 7 • 3-4pm
A1, Convention Center

Modern graphics hardware continues to get more complex, with more stages being added to an already complex rendering pipeline, along with existing stages increasing in flexibility and complexity. Getting the best performance out of this system involves identifying the bottlenecks in your application and knowing what do about them, a difficult task.

This talk covers optimizing the performance of your application for modern GPU rendering pipelines. Specifics for optimizing each stage of the pipeline, from CPU usage to transform and lighting, through triangle rasterization, and finally framebuffer access are covered. Details covering performance of new GPU features, including the new and much more powerful fragment shading capabilities, are presented. Finally, precise performance numbers for a myriad of common cases are provided to aid tuning and trading performance vs. quality.

Intended Audience: This talk is targeted at graphics programmers with basic experience in writing real-time graphics engines.

Lecture – Intermediate

Highly Detailed Continuous Worlds: Streaming Game Resources From Slow Media

Stuart Denman *See page 118 for bio*
Thursday, March 6 • 10:15-11:15am
A4, Convention Center

This talk discusses several approaches to loading all types of game data asynchronously and in the background while the game runs. It focuses primarily on the techniques used in Surreal's Riot Engine and includes an architectural overview of the system which can generically load textures, models, sounds, music, animations and other data. The benefits allow a game to run with infrequent or no loading time, and have the appearance of massive levels containing hundreds of megabytes of data, but still be able to run on consoles with limited memory space. PlayStation 2, PC, and Xbox-specific adaptations are covered. Also discussed are methods for improving memory fragmentation and CD/DVD performance in this kind of dynamic environment.

Takeaway: The presentation inspires developers who continue to load data in a linear fasion with frequent load times to change to a more flexible and powerful system.

Prerequisite: Understanding of programming architecture. Working knowledge of games and their data requirements.

Lecture – Intermediate

High Dynamic Range Imagery and Image-Based Lighting

Paul Debevec *See Addendum for bio*
Saturday, March 8 • 2:30-3:30pm
J1, Convention Center

This session shows how to create more realistic environments and lighting through high dynamic imagery and image-based lighting. The course presents how high dynamic range imagery (HDRI) covering the full range of light in the real world can be used as texture maps in real-time virtual environments and as realistic sources of illumination for CG objects and characters. The course explains the relationship between HDRI, Image-Based Lighting, and Global Illumination, and how the three can be used together to create renderings and composites with extremely high realism. Examples are given using renderings from LightWave 3D, Maya, RADIANCE, and the Arnold rendering system. HDRI file formats, manipulation software, special blur and glare effects, and issues surrounding gamma correction are presented. The session will demonstrate new real-time realistic rendering techniques leveraging the programmability and HDR capabilities of the latest graphics cards.

Takeaway: Light in the real world has an enormous dynamic range, but the dynamic range in standard imaging and rendering techniques is very limited which can make achieving realism with computer graphics difficult. New techniques and hardware overcome the dynamic range problems in high dynamic range image capture, representation, and real-time rendering and thus allow for more realistic graphics and new avenues for creative design.

Intended Audience/Prerequisite: This course is helpful for digital artists, game designers, game engine programmers, and especially people involved in Environment Modeling and Character Lighting. Participants should have experience with digital image processing (basic Photoshop skills, for example), CG lighting (point light sources and surface normals and such), and some knowledge of graphics hardware programming.

Sponsored by ATI

HLSL programming with RenderMonkey

Natasha Tatarchuk *See page 145 for bio*
Friday, March 7 • 4:30-5:30pm
C2, Convention Center

One of the most significant new advances in real-time 3D game development is the introduction of the Direct3D High Level Shading Language in DirectX 9. Utilizing this industry standard shading language, game developers are able to increase productivity and creativity by developing advanced shader effects for chips such as ATI's RADEON 9700 and RADEON 9500 more quickly and easily than ever before. The RenderMonkey development tool from ATI extends the power of the Direct3D High

programming track

Level Shading Language by providing an easy to use, flexible, extensible programming environment for programmers and artists working with shaders.

This presentation walks the user through a number of advanced HLSL shader examples and will show how the RenderMonkey development environment can be used to speed production and improve communication between the programming and art teams on a game development project.

Takeaway: Attendees gain an appreciation for the power of the Direct3D High Level Shading Language and an insight into the utilization of RenderMonkey in a typical game development environment.

Intended Audience: The intended audience for this session is graphics programmers and technical artists who have familiarity with the techniques and concepts surrounding programmable graphics shaders.

Sponsored by Microsoft

How To Write A Network Layer

Michael Narayan & Robert Di Benedetto
See pages 138, 118 for bios
Thursday, March 6 • 4:30-5:30pm
A1, Convention Center

Congestion management, ACK'ing, NAT traversal, packet signing? There are hundreds of ways to screw up your network layer. A broken network layer equals frustrated users, reduced sales, and eventual unemployment for the responsible game developer. Luckily we're here to help. Over the years we've faced and fixed hundreds of the issues you'll encounter, and in this session we focus on both the common pitfalls as well as the obscure. We also cover some of the optimizations that can be made and highlight the tradeoffs involved, using real world code examples drawn from both Winsock and the internals of DirectPlay 9.0. This session is your ticket to writing a robust network game layer.

This session focuses on the following topics:

- Congestion Management: Techniques for handling packet back off and link bandwidth sampling
- ACK'ing: Efficient mechanisms for handling reliable traffic
- Signing and Encryption: Maintaining link integrity and session security
- Denial of Service Issues: Avoiding resource starvation and maintaining service availability
- Coalescence: Tradeoffs and optimizing for limited bandwidth
- Peer to Peer: NAT traversal issues and maintaining session consistency
- TCP vs. UDP: Pros and Cons of each protocol
- Multicast: Common misconceptions and appropriate usage

Lecture – Intermediate

Living in a Procedural World: Growing a Virtual Forest

Patrick Smith *See page 143 for bio*
Thursday, March 6 • 4:30-5:30pm
J1, Convention Center

Life is a phenomenon crafted by infinite variation. No two fingerprints are the same, no two leaves share identical patterns, and it would seem strange to stroll through a forest and encounter the exact same tree repeated over and over. So why should games exhibit this same repetition? This lecture covers methods for "growing" realistic forests by procedurally generating infinitely varied models for trees, foliage, and ground cover.

Takeaway: The attendee learns procedural algorithms for generating seamless tree trunk meshes, realistic foliage, and ground cover such as grass and brush. Efficient LOD schemes are discussed for each object type. Dynamic interactions, such as falling trees and animating grass, are described.

Intended Audience/Prerequisite: This lecture is intended for intermediate level graphics programmers with strong programming skills and a firm grasp of data structures.

Lecture – Intermediate

Making Sound Designers Independent: Techniques to Integrate Audio into Games

Thomas Engel *See page 120 for bio*
Friday, March 7 • 10:30-11:30am
A2, Convention Center

Attaching sound effects or pieces of music to certain events in a game can be a challenge. With an ever increasing amount of content and complexity in games it simply no longer makes sense to have a programmer integrate every single sound effect that was designed by a sound designer or every little piece of music composed for the game. The session discusses a technique to integrate audio into games that removes a lot of the classical interlocks between audio programmer and sound designers. Real-time audio mixing challenges and solutions will also be discussed. A QA session to discuss the solution presented as well as possible other solutions will end this presentation.

Sponsored by Microsoft

Managed DirectX: .NET support for DirectX

Tom Miller *See page 138 for bio*
Thursday, March 6 • 10:15-11:15am
A1, Convention Center

This lecture presents an introduction to Managed DirectX (MDX), a wrapper layer that enables any Common Language Runtime (CLR) application to use the DirectX APIs. MDX provides official DirectX support for the .NET initiative, and replaces usage of the Visual Basic typelib and COM interop. MDX is architected to provide maximum performance while conforming to the .NET programming style. This includes support for Direct3D, DirectDraw, DirectSound, DirectInput, and DirectPlay. In addition, video playback support will also be provided.

Intended Audience/Prerequisite: With the release of DirectX 9.0, which will contain the MDX runtime,

programmers can target this functionality and expect wide availability. Likewise, the DirectX 9.0 SDK will contain both C# and VB.NET samples to enable developers to pick whichever Visual Studio .NET language suits them. While it is expected that MDX will be especially relevant for in-house and commercial tool developers, where the added benefits of .NET programming are most attractive, with the performance goals MDX has (98% of core C++ COM performance, task for task) it should be viable for game programmers as well.

Sponsored by ATI

Maya/Max to DX/GL: Translating Native Materials for Real-Time Applications

Dominik Behr & Matt Komsthoeft
See pages 115, 130 for bios
Friday, March 7 • 12-1pm
C2, Convention Center

The latest generation of graphics hardware, with full floating point data throughout the pipeline, can support extremely general, high-level shading models. Taking advantage of this flexibility, we demonstrate how to translate Maya Shading Networks and 3D Studio Max Standard Materials to industry standard, cross-platform hardware interfaces. Targets include DirectX9 vertex and pixel shaders, DirectX9 HLSL, OpenGL vertex and fragment programs, and the GL2 Shading Language. This translation enables transparent hardware acceleration of the native materials, directly in the Maya and Max viewports. Artists are able to use the materials familiar to them from the DCC tools, without having to directly program shaders or learn new interfaces. After tweaking materials in the viewport, the materials can be exported and translated for use in a game engine.

Lecture – All

Memory Optimization

Christer Ericson *See page 121 for bio*
Friday, March 7 • 12-1pm
A4, Convention Center

Due to the large, increasing gap between ever faster CPUs and not very fast main memory, processes that depend on larger amounts of data are quickly becoming performance bottlenecks on modern architectures.

While faster cache memory often sits between the CPU and main memory, helping in alleviating the problem, blindly trusting any present cache memory to automatically eliminate all memory issues is not wise. Indeed, for high-performance code, it is important to take the whole memory hierarchy into account when code is designed and written.

The focus of this lecture is to show how increased performance can be achieved by adapting the way both data structures and algorithms are implemented to better match the architecture of the target CPU and the data and instruction caches of its memory hierarchy. It also focuses on how code can be written such as to facilitate C/C++ compilers to better optimize code, reducing memory accesses and thus minimizing stalls due to latencies.

Topics addressed in the presentation include: increasing code locality, memory-aware object placement, structure optimization including field reordering and hot-cold splitting, cache-awareness vs. cache-obliviousness, data structure linearization, data compression and custom caching, prefetching and preloading of data, non-blocking loads, aliasing and alias analysis, load/store and common subexpression elimination, the C++ abstraction penalty, and restricted pointers.

To better illustrate the issues, ample code examples are given during the presentation, including examples of memory optimized spatial data structures.

Takeaway: Attendees are introduced to the problems caused by an increasing gap between CPU and memory speeds. Practical solutions are given for structuring code and data to optimize data structures and algorithms to drastically minimize memory bottlenecks.

Intended Audience/Prerequisite: This presentation is targeted at all programmers interested in improving their optimization skills on modern hardware, in particular relating to memory bottlenecks.

Sponsored by Intel

Multi-threading Your Game Engine for Hyper-Threading Technology

Dean Macri *See page 134 for bio*
Friday, March 7 • 3-4pm
C3, Convention Center

Artificial intelligence, physics, rendering, music/sound mixing and decoding, networking, and more are all game components that compete for CPU resources. Nevertheless, even with so much going on, CPU hardware resources continue to go under-utilized. However, with HyperThreading technology bringing multiprocessing to the mainstream, programmers now have the opportunity to take advantage of such idle resources, allowing their games to achieve new levels of interactivity and realism. This class reveals some of the implications related to threading a game engine, discusses suggested levels of thread granularity, and demonstrates how available tools can help reduce development time. Topics covered will be reinforced with demos and case studies.

Takeaway: An understanding of how the Intel Pentium 4 Processor is structured, how Hyper-Threading technology works, and practical guidelines of how to apply this to code design.

Prerequisite: Programming experience in C/C++ and Assembly.

Lecture – Intermediate

Neverwinter Nights Client/Server Postmortem

Mark Brockington & Scott Greig
See pages 116, 124 for bios
Thursday, March 6 • 11:30am-12:30pm
A4, Convention Center

This session offers a frank discussion and evaluation of the system and AI architecture for Neverwinter Nights, a multiplayer Dungeons & Dragons role-playing game for the PC. This talk provides an outline of the evolution of the resource system and data-driven architecture from Bioware's earlier titles as the programmers attempted to facilitate user-made content. The far-reaching impact of the rigid client/server networking model on the art pipeline, terrain creation, creatures and pathfinding is investigated. How the Dungeons & Dragons licence modified system architecture is also considered. The evolution of the AI architecture covers the second half of this session. Topics include the design and implementation of the scripting language and its interactions with the AI creatures. Attempts to make designers proficient in the scripting language are examined. NWN's reputation system, and the many issues that came up as the ship date approached, are analyzed in depth.

Takeaway: Participants learn about some of the successful processes that are used to develop role-playing games. The speakers describe some well-intended but awful decisions that have been made in the hope of warning others that they may be going down the wrong path.

Intended Audience/Prerequisite: This talk is targeted at programmers who are

responsible for system or AI architecture. Some familiarity with system terminology is assumed.

Sponsored by Softimage

THE NEXT GENERATION OF GAME CHARACTERS - EXPLORING CREATION TECHNIQUES: (3) INTEROPERABILITY AND RAPID ART PIPELINE DEPLOYMENT

See addendum for speaker
Saturday, March 8 •10:30-11:30am
C3, Convention Center
This presentation is one of three related presentations investigating emerging character creation techniques and production workflow, designed to help artists and developers turn emerging technologies into robust production workflow and efficient studio process. The three presentations combine to cover the creation of characters that maximize use of hardware accelerated surface effects, advanced rigging and enveloping systems, and can be output into efficiently optimized runtime structures.

Inevitably, games artists often find themselves working in multiple art tools, and retargeting art across a series of games platforms and multiple iterations of the same game franchise. All of these challenges involve art asset re-use and redeployment. This session explores technologies to help developers deploy robust content pipelines, including the open, freely available dotXSI file format and file transfer SDKs.

Takeaway: The attendee is introduced to the dotXSI open interactive media transfer file format, and the Softimage FTK, a freely available cross-platform media transfer toolkit, designed to assist the deployment of robust rich-media art pipelines.

Intended Audience/Prerequisite: Attendee has development experience with C / C++ and is interested in the deployment of art pipelines for 3D content, models, characters, and realtime shading effects from content creation tools to bespoke game projects in development.

Sponsored by Nvidia

OGRES & FAIRIES: SECRETS OF THE NVIDIA DEMO TEAM

Simon Green, Curtis Beeson, Joe Demers, Gary King, Hubert Nguyen, Daniel Hornick *See pages 114-148 for bios*
Friday, March 7 • 4:30-5:30pm
A1, Convention Center

The GeForce FX and the CineFX architecture aim to bring real time rendering closer to the quality of cinematic special effects. The charter of Nvidia's in-house demo team was to demonstrate this new technology in as visual and entertaining way as possible. The result was the GeForce FX demo suite, comprising of "Dawn", "Time Machine", "Toys" and a real-time version of Spellcraft Studio's short movie "yeah!" This session will, for the first time, reveal the tricks and techniques behind the demos, and how they can be used in your own game productions. Topics will include:

- Procedural texturing for aging effects in "Truck"
- Advanced skin shading, and hair rendering in "Dawn"
- Real-time adaptive subdivision surfaces and ambient occlusion shading in "Dancing Ogre"
- Practical depth of field and post processing effects in "Toys"

Takeaway: Attendees gain a greater understanding of the code, methods, and tools used to create the Nvidia launch demos.

Intended Audience: This lecture is targeted at graphics programmers with the desire to create compelling visual experiences using the latest GPU technologies.

Sponsored by Khronos

OPENGL ES: BRINGING 3D GAMING TO CELL PHONES

David Blythe & Neil Trevett
See pages 115, 145 for bios
Thursday, March 6 • 11:30am-12:30pm
C2, Convention Center

OpenGL ES is the official standard to bring advanced 3D gaming capabilities to mobile devices—including cell phones. The Khronos Group is defining subset profiles of OpenGL to enable full 3D gaming in very small devices—with or without hardware acceleration. The session begins by describing the history and motivation behind OpenGL ES, the process used to develop the specification, and its relationship to OpenGL. This is followed by a detailed review of the standard profiles - including a discussion of how target environments and platform constraints influenced the resulting standard. The next section of the session discusses practical aspects of working with OpenGL ES on target platforms, and shows how the standard provides support for working under constraints including limited compute power, limited memory and lack of floating point arithmetic. This discussion includes strategies for porting existing applications and developing new ones. The course closes with a review of the status of OpenGL ES in the marketplace, a discussion of where it is being implemented and insights into plans for the future evolution of the standard.

Takeaway: At the conclusion of this session, attendees should leave with:

- An understanding of the work of the Khronos Group and how they can get involved
- A detailed understanding of OpenGL ES and how it relates to desktop OpenGL
- How OpenGL ES enables them to generate 3D content for constrained platforms
- An insight into new commercial opportunities for mobile 3D gaming that OpenGL ES will create
- A burning desire to write cool handheld 3D games!

Sponsored by 3Dlabs

THE OPENGL SHADING LANGUAGE

Randi Rost *See page 142 for bio*
Thursday, March 6 • 3-4pm
C2, Convention Center

The change from fixed functionality to programmability is perhaps the largest change to ever occur in consumer-priced graphics hardware. This change also presents big

programming track

challenges and big opportunities for software developers. This session looks at the changes that are being made to support programmability in OpenGL, the preeminent cross-platform 3D graphics API. The session provides an overview of the OpenGL Shading Language, a high-level language for programming graphics hardware. The session also covers other recent changes to the OpenGL API, the shader development environment, and the path forward for OpenGL. Shaders written in the OpenGL Shading Language will be demonstrated and discussed.

Takeaway: At the conclusion of this session, attendees should leave with:

- An appreciation for the limitless possibilities available with programmable graphics hardware
- A basic understanding of the OpenGL Shading Language
- Knowledge of other recent changes to OpenGL to augment programmability
- A sense of the roadmap for the future of the OpenGL API
- A strong desire to write cool shaders for their own application

Intended Audience/Prerequisite: This tutorial is aimed at software developers interested in exploring the unique possibilities of programmable graphics hardware. Knowledge of graphics programming in C/C++ is required. A working knowledge of OpenGL and knowledge of some graphics rendering algorithms will be helpful.

Sponsored by Microsoft

Opportunities in the PC Gaming Marketplace

Brian Benincasa *See page 115 for bio*
Thursday, March 6 • 9-10am
A1, Convention Center

In 2001 the PC gaming marketplace was a $1.2B industry in the U.S. alone. Annual growth is steady at around 10% and has been for the past several years in both boxes sold and revenue. Clearly the PC is not dead as some say and is a viable and thriving platform for gaming, but where do we go from here? This talk will outline the current demographics of the PC gaming ecosystem and how the continual evolution of these demographics creates new and exciting opportunities for growth. Subjects I'll focus on in this talk will include case studies around targeting PC games towards the smaller yet growing demographic of women, marketing completely new brands in a hit-driven industry, and a detailed analysis of the annual sales trends in the PC game marketplace. I shall provide analysis of the aforementioned subjects and offer observations, theories, and suggested best practices for publishers and game ISV's alike.

Sponsored by Intel

Optimize Your Games for the Newest Intel Pentium 4 Processor with Hyper Threading Technology with the Intel Software Products

An Le *See page 132 for bio*
Friday, March 7 • 12-1pm
C1, Convention Center

The newest Intel Pentium 4 processor supports Hyper-Threading Technology, which helps enable you to multitask more efficiently than ever before when you run the most demanding applications at the same time.

This talk demonstrates the use of Intel Compilers to support multi-threaded code development and optimization through the Auto-Parallelism feature and OpenMP* 2.0 support. The talk will also focus on the Intel threading toolkit that makes it easy to add parallelism to existing software, including focusing on threading performance and analysis of threads for identification of subtle programming errors.

Sponsored by Intel

Optimizing Games for Power and Performance on Intel XScale Microarchitecture- based Mobile Devices

Gopi K. Kolli *See page 130 for bio*
Friday, March 7 • 10:30-11:30am
C1, Convention Center

Emerging handheld and mobile platforms need to deliver high-performance graphics applications while consuming minimal power. Proper consideration should be given during the game design and implementation stages to address these issues. Traditional optimizations have been mostly processor-based. Various algorithms requiring lesser compute cycles or bandwidth were developed to improve the performance, where possible, or to add more content. In mobile devices, improved battery life is also very important. Therefore, optimizations based on algorithms that make better usage of cache, optimal power states and minimize switching overhead between those power states should be done to improve the battery life. A balanced approach between optimizing for power and performance is the key for a successful game. Discussion topics will include techniques and programming guidelines for minimizing power consumption and maximizing application performance. New usage models that can benefit from system-level power management techniques will be also discussed. A collection of case studies and demonstrations will be used to present these innovative techniques.

Takeaway: A growing number of mobile devices (handheld and cell phone) use processors based on the Intel XScale Microarchitecture. Supporting graphics applications on these devices require addressing some architectural challenges as well as power and performance issues. Attendees come away with a better understanding of these issues and how to best use existing solutions.

Prerequisite: The session is aimed at game programmers and game engine developers interested in programming for Intel XScale Microarchitecture-based handheld and mobile platforms. Programmers experienced with ARM* processors as well as those migrating from desktop platforms can benefit from this lecture. Some exposure or understanding of Operating system and assembly programming is required.

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Lecture – Advanced

Pathematics: Routing for Autonomous Agents

Alex J. Champandard *See page 117 for bio*
Friday, March 7 • 10:30-11:30am
J2, Convention Center

As game AI becomes more complex, both its dependency and expectations of the navigation system will increase. Dynamic conditions, moving obstacles, and changing terrains are slowly becoming commonplace, which the standard A* model has trouble coping with. These flaws are pointed out, giving reasons for discarding the awkward single-pair paradigm along with the inflexible concept of search. In this lecture, dynamic navigation systems are studied, with an especial focus on planning. A radically new solution is proposed, redefining the way paths are requested and followed as well as the underlying process. The result is a simple, flexible solution that can provide dynamic level of detail path-planning with incredibly human-like motion in a

surprisingly efficient fashion.

Takeaway: A* based navigation approaches are not suited to modelling complex human-like behaviour. Study of a generic dynamic navigation system reveals that the interface for specifying paths needs to be extended from single-pair to use "implicit destinations." Also, underlying shortest path searches are not ideal, a heuristic process which provides a level-of-detail approach is preferred. Practical problems with dynamic navigation are analysed and explained, showing how developers can cope with them.

Intended Audience/Prerequisite: AI coders requiring simple, efficient and realistic movement in NPC. Knowledge of graph terminology & shortest-path searches recommended. Practical experience with navigation is a distinct advantage.

Sponsored by Intel

Pentium 4 Processor Optimizations in DirectX 9.0

Ronen Zohar and/or Will Damon
See pages 148, 118 for bios
Thursday, March 6 • 9-10am
C1, Convention Center

DirectX 8 introduced a new programmable way for processing vertices. By programming a dedicated vertex virtual machine, a DirectX programmer can perform custom vertex-based operations within the framework of a generic API. The vertex shader script can be executed by hardware, but not all hardware today has this capability. DirectX provides a software solution for vertex shaders and its performance is quite impressive.

This lecture focuses on Intel's software implementation of the vertex shader mechanism and how to optimize vertex shader scripts (programs) to get maximum performance from this feature.

Takeaway: Attendees will come away with an understanding of the optimizations made to the DirectX 9.0 runtime and libraries, and tips to optimizing their applications to take advantage of these optimizations.

Prerequisite: Familiarity with the DirectX SDK.

Lecture – Advanced

Physics and Animation, Blending Kinetics and Kinematics in a 3rd Person Shooter

David Wu *See page 148 for bio*
Saturday, March 8 • 2:30-3:30pm
A3, Convention Center

Combining physical simulation with key framed animation is somewhat of a black art.A review of the literature reveals that there is very little published research addressing this topic, it seems that academia has chosen to ignore the challenge. This lecture presents a scheme through which this challenge might be overcome in the context of a third person shooter.

Takeaway: Take away a practical scheme through which key framed animation can be incorporated into a physically simulated third person shooter.

Intended Audience: Programmers with an interest in physics or animation.

Lecture – Intermediate

Porting a PlayStation 2-Centric Game to the Xbox: A Case Study of State of Emergency

Jonny Dobson *See page 118 for bio*
Friday, March 7 • 4:30-5:30pm
J2, Convention Center

This presentation describes the challenges that were encountered when porting State of Emergency (SoE) from the PlayStation 2 to the Xbox. SoE was developed as a PlayStation 2 game; the underlying rendering and animation technology consists of over 5000 lines of hand written vector unit assembly code. The biggest hurdle to overcome was the fact the entire game was built around code that was hand-tuned to derive the maximum performance from the PlayStation 2 architecture.

This presentation shows that the approach taken was to develop a very specialized Xbox rendering engine that was optimized to perform extremely well in areas of the engine that had relied on the high-performance of specific PlayStation 2 hardware. Specifically, the code that previously had utilized the vector unit processors. The resulting Xbox engine is capable of displaying the same number of characters as the PlayStation 2 version, but at a constant 60 frame-per-second, as opposed to 30. The presentation also shows that radically different high and low-level methods were required make SoE work on the contrasting architecture of the Xbox and to achieve higher levels of performance.

Takeaway: Developing a low-level rendering engine for the PlayStation 2 meant that SoE could display hundreds of characters simultaneously, each with their own AI. Tailoring the design of a game to the performance of a specific architecture means that novel techniques are require to port the code to another platform. Using an in-house graphics engine meant that it was possible to achieve performance levels that could not be reached with conventional cross-platform rendering libraries.

Roundtable – Intermediate

Programming Cleverness: Tricks of the Trade

Brian Sharp *See page 143 for bio*
Thursday, March 6 • 4:30-5:30pm
Plaza, Hilton
Friday, March 7 • 4:30-5:30pm
Plaza, Hilton
Saturday, March 8 • 9-10am
Pacific, Hilton

As game programmers, we each occasionally stumble upon nuggets of wisdom, helpful little gems of insight that take a day to implement and save days, weeks, or even months of effort throughout the life of the project.

These handy critters come in many forms. Some are way down in the code, like helpful system-specific debug functions or quirky hidden files to customize the output of your debugger. Some are code systems that are exposed to the whole team, like good assert dialogs, memory dump functionality and good log-file support. Finally, some are purely workflow-related, like strategies for interacting with

other programmers, tips for self-scheduling, or office layout strategies.

Sometimes, one of these tricks is a moderate time-saver. Sometimes, it just makes life a lot more pleasant by automating otherwise grueling manual tasks. Sometimes, it'll do both, and so well that it becomes a fundamental part of your studio's operation, making everyone's life easier and meriting its own shrine.

We all have a handful of these tricks, and not everyone has the same ones. So it's kind of like a trading card game, only you don't lose a trick when you trade it, everyone wins! Come to this roundtable to share in the communal wealth of programmer tips and tricks, and hopefully we'll all go back home with a few new powerful tools in our belts.

Takeaway: Attendees leave with a fresh set of tips and tricks to try out on their own.

Sponsored by Nvidia

Programming the GPU using Cg

Kevin Bjorke, Sébastien Dominé, Cyril Zeller
See pages 114-148 for bios
Friday, March 7 • 10:30-11:30am
A1, Convention Center

Historically, graphics hardware has been programmed at a very low level, either by setting a small number of configurable rendering paths or, more recently, by using assembly language programming interfaces. But, as it grows in complexity and computing power, allowing programs of hundreds, if not thousands, of instructions becomes impractical.

Cg is the new way of programming the GPU. It provides several advantages over low-level programming: It makes code much easier to read and understand; it enables rapid prototyping and tuning of high-quality effects, it offers automatic optimization through the process of compilation, and by decoupling programs from specific hardware, it makes them highly portable across existing, as well as future hardware platforms and software interfaces.

The goal of this session is to introduce game developers to Cg programming. It covers the main aspects of the language specification and the runtime API. By detailing two complete Cg programs: source code explanation and demos, the audience will capture the essence of the Cg language. Furthermore, a detailed description of how the language interacts with DirectX and OpenGL allows any programmer already familiar with one of those APIs to start writing and running Cg programs right away.

The CgFX Runtime is also presented: it is the key to unifying the entire rendering production pipeline from the digital content creation tools to the game itself. The session will conclude with a demonstration of the various CgFX plug-ins and tools currently available.

Takeaway: Game players want games to look even more realistic and the ever-increasing graphics performance and programmability of the new GPUs make this possible. But, to take advantage of all this power and keep up with the rapid pace of innovation in GPUs, game developers have to shift from low- to high-level programming, focusing on the desired graphic effects instead of their particular hardware implementations. From this lecture, they take away an understanding of how to use a high-level shading language in their game engines to improve quality and decrease production time.

Intended Audience/Prerequisite: Although the concepts and fundamental operations are explained in a comprehensible manner to artists and game designers, this lecture is intended primarily for game programmers with a basic knowledge of the DirectX or OpenGL programming interfaces, as well as the overall graphics hardware pipeline.

Roundtable – Intermediate

Python in the Gaming Industry

Glyph Lefkowitz & Sean Riley
See pages 132, 141 for bios
Thursday, March 6 • 10:15-11:15am
Plaza, Hilton
Friday, March 7 • 9-10am
Plaza, Hilton
Saturday, March 8 • 2:30-3:30pm
Plaza, Hilton

This roundtable is a discussion of the use of the Python programming language in the computer game industry. It provides a way for game developers that are already using Python to meet, share experiences, share online Python resources, and discuss Python issues specific to the video game industry. It is useful to developers who are considering Python as it provides information from developers who are actively using Python in the real world.

Takeaway: Learn how Python is being used by game developers including examples from the game industry of projects that have shipped using Python. Hear about the Python development community outside of the games industry and Python resources available on the Internet.

Intended Audience: Programmers that are actively using Python for game development, and programmers that are using scripting languages for game development.

Sponsored by ATI

Real-Time 3D Scene Post-Processing

Jason L. Mitchell *See page 138 for bio*
Friday, March 7 • 9-10am
C2, Convention Center

With the high fill-rates offered by today's 3D graphics hardware, it is possible to perform image processing and compositing effects in real-time to 3D scenes in order to implement special effects similar to those found in film production. With the arrival of DirectX 9 shader hardware, it is possible to perform these effects in High Dynamic Range (HDR) space for additional photorealism. This session provides an introduction to image-space special effects and high dynamic range rendering for beginners and moves on to applications of these techniques to real-time 3D games.

Takeaway: Attendees gain a greater understanding of the application of image processing and High Dynamic Range rendering techniques to real-time games. Newbies learn about the filters and operators used while experienced programmers take away tips on how to integrate scene post-processing into their game titles.

Intended Audience: The intended audience for this session is a graphics programmer who has some familiarity with DirectX shaders. Programmers with knowledge of the legacy multitexture pipeline will also benefit.

Lecture – Advanced

Real-Time Fluid Dynamics for Games

Jos Stam *See page 144 for bio*
Friday, March 7 • 10:30-11:30am
J1, Convention Center

The game community can greatly benefit from fast fluid solvers to add atmospheric effects such as fog, smoke, water and fire to their games. This talk presents novel techniques to simulate these effects in real-time using physics-based models. The resulting solvers automatically create

convincing animations of fluid-like behavior such as swirling smoke past a moving character. The presentation introduces the basic tools and concepts of fluid dynamics and covers various efficient algorithms to implement them. Actual workable implementations in C code will be given in the talk. Many live real-time demonstrations during the presentation illustrate the interactivity and visual quality of the resulting flows. The talk should mainly appeal to game programmers who wish to include real-time fluid effects into their game engines, however, artists and a larger audience should be intrigued by the live real-time fluid demonstrations. The core of the work presented in this talk is based on the "Stable Fluids" algorithm that the speaker published at SIGGRAPH 99.

Takeaway: Game programmers learn how to implement a basic fluid solver in their game engine. Some of the algorithms covered can also assist them in solving other physics related problems. They gain a basic idea of the concepts behind these solvers which should encourage them to pursue their own research. Artists and game designers appreciate the live demonstrations accompanying this talk, being inspired to incorporate these novel effects in games.

Intended Audience/Prerequisite: Game programmers, artists and general audience. C programming and algorithms is a prerequisite to fully understand the talk. Much of the talk has cool demos that will appeal to a large audience.

Lecture – Intermediate

Representational AI Planning Techniques

Charles Martin *See page 134 for bio*
Friday, March 7 • 3-4pm
J3, Convention Center

This talk presents representational AI planning techniques and how they can be layered on top of existing game AI. These techniques explicitly manipulate representations of the world to simulate and choose between alternative behaviors. This is contrasted with situational AI techniques, in which behaviors depend directly on the current state.

The exciting work in game AI over the past couple of years remains primarily situational. These techniques will always be crucial to maintaining a satisfying real-time play experience. By layering representational planning over situational AI, we hope to develop a more satisfying through-line, more strategic behavior, better in-game understanding of the player experience, and richer design vocabularies for building better games.

This talk covers the essential elements of representational planning techniques motivated by specific game examples and documented with references and resources for further exploration.

Takeaway: An appreciation of representational AI planning techniques and how they can be layered on top of existing game AI.

Intended Audience/Prerequisite: This talk targets game programmers and designers who understand the basics of search, programming, and who have some experience with the issues of building game AI.

Lecture – All

Sandbox Strategy Learning in Sports Games

Jack van Ryswyck *See page 146 for bio*
Friday, March 7 • 4:30-5:30pm
J1, Convention Center

The illusion of intelligence is most easily destroyed by predictable or static behaviour. The ability for game characters to learn and adapt to the game player's actions will become increasingly important as the AI in games develops. Yet in many games, specifically in all sports simulation games, the AI must be kept in a "sandbox": It should not potentially evolve into nonsensical territory. This lecture focuses on a strategy learning experiment as part of an AI architecture under design in collaboration with Electronic Arts for their series of sports games.

Takeaway: Learning is especially important in sports games. Due to the simulation of real world events, learning is also especially difficult in sports games. It can make a noticeable difference in game strategy, while still preventing the system from evolving into undesirable or nonsensical directions.

Intended Audience/Prerequisite: This presentation is intended for game AI programmers. No prerequisite knowledge is required beyond a basic familiarity with team sports games.

Lecture – Advanced

Scaling the Software Development Process

Greg Kearney, Larry Mellon, & Darrin West
See pages 114-148 for bios
Thursday, March 6 • 3-4pm
A4, Convention Center

As a project increases in size and complexity, the overhead of software development increases. Nowhere is this more evident than in massively multiplayer games. The Sims Online incrementally morphed a hit single-player property into a massively multi-player Internet subscription game. The system was kept 'live' at all times during the morph: stability and rapid turnaround are required to support game design experimentation. In fielding such a large, complex system with a large, parallel-tracked development team, many aspects of the software development process itself required scaling. Defects are much more expensive in such an environment, and all too common as work in tightly coupled components collides. Many shifts in the standard game development lifecycle were required to keep developer efficiency high as the project scaled in terms of the number of developers, given the volume of code and the co-dependency between components, all while maintaining a fully live system. Ranging from architectural separation to incremental refactoring to code patterns to testing approaches, this talk discusses the software development issues TSO encountered while taking a single player game into the massively-multiplayer market: What successfully evolved to meet real-world conditions, and what did not?

Takeaway: Converting a hit single player game into a large-scale network game is slow, expensive and painful. Unless you do it right. The audience should leave with a clear understanding of the general software engineering problems faced when fielding a massively-multiplayer game, and a healthy dose of paranoia. The effects of scale

are analyzed in the context of how architectural simplifications, workspace management, and tools allow a large team to co-exist in a tightly coupled, rapidly evolving legacy code base, all while keeping the system live.

Intended Audience: Senior engineers and project managers.

Sponsored by Microsoft

Screaming at the Machine: Using Speech Recognition as a Complement to Traditional Game Input Technique

Dave Bartolomeo *See page 115 for bio*
Thursday, March 6 • 11:30am-12:30pm
A1, Convention Center

Advances in speech recognition technology, gigahertz CPUs, and the offloading of graphics processing to the GPU have made it practical to use speech recognition in commercial-quality games. The characteristics of speech recognition make it a unique input device, significantly different from a mouse, keyboard, or joystick. Speech is more flexible than keyboard commands, easier to use than multi-level menus, and it enables players to issue commands without moving their focus away from the primary game interface. This talk demonstrates how to incorporate speech recognition into your game in a way that complements traditional input devices, rather than trying to replace them.

Takeaway: The talk demonstrates the current state of the art in PC speech recognition, and shows what the game developer has to do to implement speech recognition in a game using publicly available APIs on Windows. Sample code is provided.

This talk helps the developer understand what types of commands work well as spoken commands, and what types are best left for physical input devices. It will also explore new ways of interacting with games that are only practical with speech recognition. Special attention will be given to the interaction between speech recognition and artificial intelligence.

Sponsored by ITGLobal Secure

The SecurePlay Platform: An Open Framework for Secure Network Gaming and Commerce

Steven Davis *See page 118 for bio*
Thursday, March 6 • 10:15-11:15am
C1, Convention Center

Gaming over networks is the fastest growing portion of the computer gaming industry. Network Gaming may be the last market where small, independent studios and developers can compete. Forecasts combining worldwide revenues for Internet games, with wireless, set-top, and console platforms in 2005 exceed $20 Billion (US). Revenues will come from operating game services rather than publishing game media. This fundamental change to the gaming industry makes security an essential requirement, not an optional feature. IT GlobalSecure has developed an open framework for network gaming based on its unique, platform independent technology that secures games themselves against cheating. IT GlobalSecure will provide an overview of the protocol, its development roadmap, and the overall framework for network gaming and commerce. This technology allows players themselves to verify the security of the games they play - addressing the key consumer concern as they decide whether to participate in online gaming. This technology fits modularly into network games. IT GlobalSecure is also establishing an overall framework to make the necessary support services and utilities needed.

Takeaway: Attendees leave with an understanding of the specific security requirements for network games and IT GlobalSecure's unique technology and open strategy to accelerate the growth of this industry.

Lecture – Intermediate

Simulation and Animation with Hardware-Accelerated Procedural Textures

Mark Harris & Greg James
See pages 124, 128 for bios
Saturday, March 8 • 4-5pm
A3, Convention Center

In the past few years, ground-breaking features have appeared in consumer level graphics processors. The recent addition of full floating point precision and highly flexible programmability at the fragment level has transformed the gamer's video accelerator into a powerful tool for general purpose visual computation. This power can be used to create stunning effects in real-time. Procedural models of fluids, fire, atmospheric effects, glows, and other phenomena can be executed and rendered entirely within the graphics pipeline at high frame rates. These techniques are being used in games such as the Elder Scrolls III: Morrowind and the upcoming Tron 2.0. This talk introduces basic techniques for hardware-accelerated simulation and procedural texture animation and goes on to cover advanced methods for texture generation, volumetric simulations, and complex fluids.

Takeaway: With the increasing power available in graphics hardware, complex 2D and 3D phenomena can be simulated and used to enhance the visual realism of game worlds. Interesting textures for 3D rendering can be generated and animated at hundreds of frames per second entirely on a graphics accelerator. These animations do not require costly CPU processing and can simulate physical systems. The user can interact with these animations, giving rise to richer and more engaging virtual scenes.

Intended Audience: This talk is intended for programmers with knowledge of DX8 or OpenGL, and understanding of programmable texture blending, but concepts will be briefly explained for newcomers and non-programmers.

Lecture – Advanced

Spherical Harmonic Lighting: The Gritty Details

Robin Green *See page 124 for bio*
Thursday, March 6 • 3-4pm
A2, Convention Center

Spherical Harmonic (SH) Lighting not only produces amazing Global Illumination style images in real-time, soft shadows, area light sources, HDR environment maps, diffuse-diffuse self transfer and glossy surfaces can all be modelled using the same technique, it's basic form can be implemented as a drop-in replacement for diffuse lighting for any 3D platform. This lecture covers the math behind SH lighting, exposes its limitations and how to overcome them and provides you with the set of tools necessary for generating your own SH lighting coefficients.

Takeaway: The background math on Spherical Harmonics they don't tell you in the books. Concrete explanations of how to code the hard parts: SH Rotations and the Global Illumination preprocessor. Plus, pretty demos!

Intended Audience: Engine programmers and graphics hackers from all platforms looking to master the new ultra-reality look for games.

programming track

Lecture – Intermediate

Squeezing Every Last Drop Out of the PlayStation 2

Matt Scott *See Addendum for bio*
Saturday, March 8 • 10:30-11:30am
J3, Convention Center

The beauty of working on a fixed platform for five or six years is that you get to learn the device inside and out and push it to the limits. With the quality of the PlayStation 2 titles now being released, to compete, everyone needs to take advantage of its unique special-purpose processors.

In this presentation Matthew Scott will show you how to effectively exploit the PS2 hardware through examples that show how and why to use MMI, VU0 micro mode, and custom IOP threads. Examples will include code from shipped titles that feature interactive water, a constrained dynamics system and more.

Lecture – Intermediate

The Technology of Jak & Daxter

Stephen White *See page 147 for bio*
Friday, March 7 • 12-1pm
J1, Convention Center

After developing the highly successful Crash Bandicoot games for the PlayStation, Naughty Dog went on to develop Jak & Daxter: The Precursor Legacy, which has been heralded as having one of the most powerful engines ever created for the PlayStation 2. From the beginning we wanted Jak & Daxter to have one continuous, seamless world with no load times and no obvious level boundaries. We wanted the world to be extraordinarily detailed, yet have grand vistas and wide-open spaces. And we wanted the player to be able to roam relatively freely within the world, avoiding the rail-like restrictions of our previous Crash Bandicoot games. To achieve these seemingly conflicting goals required many creative solutions to extremely difficult problems, and impacted practically all aspects of the game's development. This talk covers an overview of the techniques and approaches that we used to create and render the detailed environments and characters of Jak & Daxter, including various level of detail technologies and data management.

Takeaway: Game hardware is continuing to become increasingly powerful. Ironically, more powerful hardware typically does not simplify game development, but instead demands creative solutions to increasingly complex problems. In developing Jak & Daxter, we were faced with many issues related to constructing and rendering highly dense polygonal levels as one seamlessly integrated world. This talk describes many of these issues and how we chose to solve these tough problems.

Sponsored by ATI

Video Image Processing Using Shaders

Marwan Y. Ansari *See page 114 for bio*
Thursday, March 6 • 9-10am
C2, Convention Center

Image processing on video streams has long been thought to be an offline processing task since it was not possible to perform any meaningful operations in real time. Video Mixing Renderer 9 (VMR9) from Microsoft allows developers to sample video images (either live or off disk) directly into texture memory. Combining this technology with DirectX 9 Shaders further allows developers to perform complex image processing operations on video streams in real time.

Web cams and live video cams are becoming more prevalent and it is only a matter of time before they are used to enhance interactivity in the entertainment markets. Everything from simple navigation to full gesture recognition can be used in order to fully engage the end user.

This talk discusses the use of VMR9 as well as standard image processing techniques such as blurring, thresholding, edge detection, and image color conversion. More advanced topics such as faking animation through normal perturbation are also discussed.

Takeaway: Attendees gain a high-level understanding of VMR9 and its uses. They also gain a greater understanding as to the versatility of shaders when applied to video streams. Furthermore, they will receive valuable insight into image enhancement and processing techniques for future game and content development.

Intended Audience/Prerequisite: Graphics programmers familiar with any of the following: DirectX Shaders, Image processing, VMR9 Video.

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visual arts keynote

Keynote
Fooling All of the People All of the Time

Bill Kroyer
Friday, March 7 • 4:30-5:30pm
B2, Convention Center

Technology has caused a transformation in the art form of moving pictures unlike any seen in the entire history of art.

By "moving pictures," that doesn't mean just film or television, but any image that moves, especially imagery completely created by technology, such as animation and computer graphics. And by "transformation," that does not mean just the way the art looks, but also the way it is created, the way it is acquired and viewed by the audience, and the way the audience's changing perception has affected the art form.

In the beginning, moving images tried to record and reproduce reality. As the ability to fabricate images improved, we moved past reality to fantasy. As audiences have grown more attuned to fantasy images, they accept and expect different things than they did a generation ago.

This session touches on all these themes by showing the evolution of the art form of animation caused by technology, the effect this evolution has had on the creators, the content, and the audience, and why the moving images of the near future will have a look and an impact unlike anything seen before.

Bill Kroyer
Bill Kroyer is an award-winning director of animation and computer generated commercials, short films, movie titles, and theatrical films. Trained in classic hand-drawn animation at the Disney Studio, Bill was one of the first animators to make the leap to computer animation as computer image choreographer on Disney's ground-breaking 1982 feature, *Tron*.

Founding his own company, Kroyer Films, Inc., Bill and his wife Susan pioneered the technique of combining hand-drawn animation with computer animation on such projects as his Academy Award nominated short film *Technological Threat* and the animated feature film *FernGully: The Last Rainforest*.

Today, Bill serves as senior animation director at Rhythm & Hues Studios in Los Angeles, where he recently supervised animation of photo-real CG animals in Warner Bros. Pictures' *Scooby-Doo* and *Cats & Dogs*, as well as the dinosaurs in Universal Pictures' *The Flintstones in Viva Rock Vegas*. He currently is directing three Cheetos spots and a commercial for Advantix, and recently directed spots for Novell, AT&T and the Coca Cola Polar Bears.

Bill is a popular speaker and panelist for entertainment and technology conferences and festivals worldwide; his animation projects are also frequent award winners at major festivals.

Bill serves on the executive board of the animation branch of the Academy of Motion Picture Arts & Sciences.

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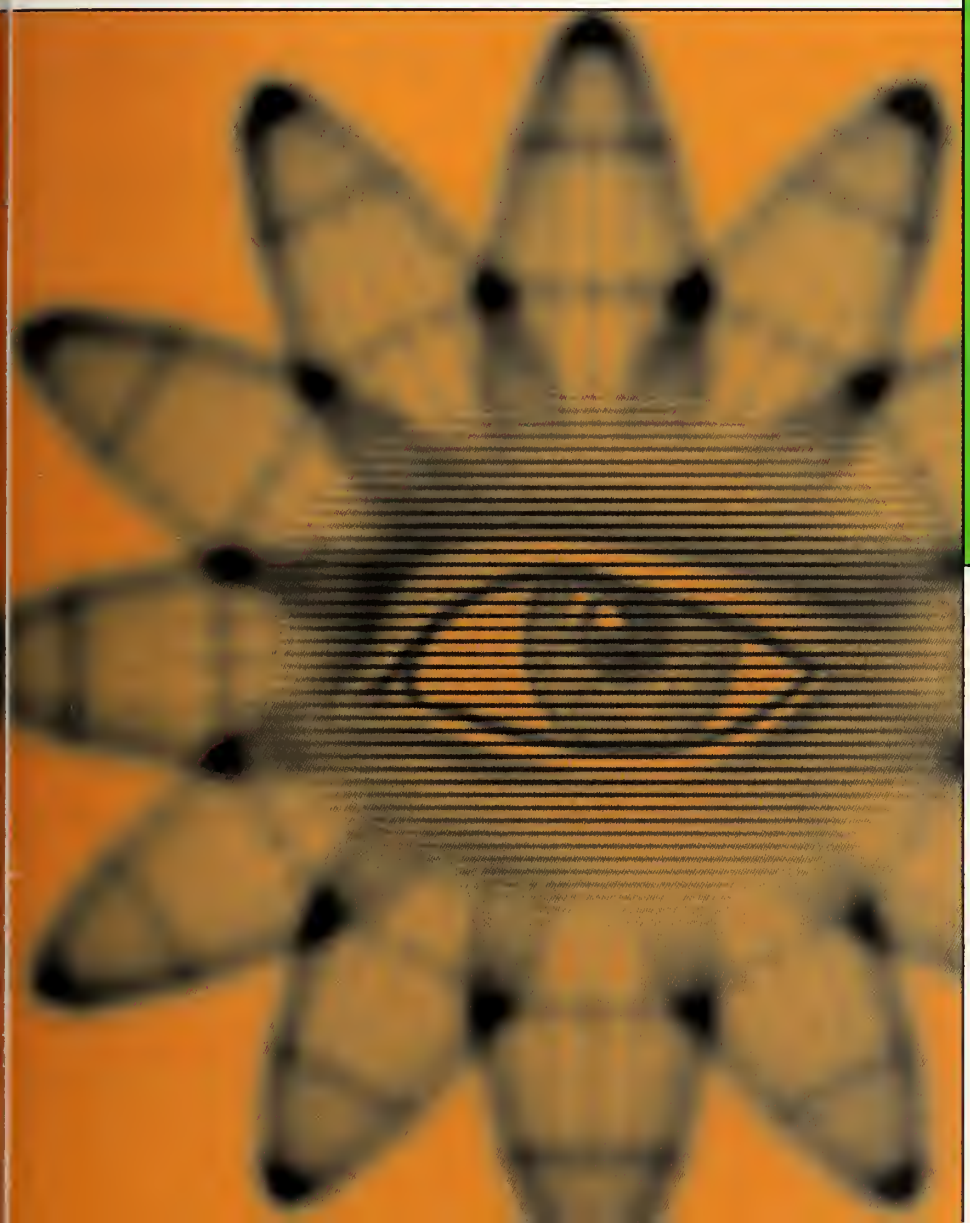

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visual arts track

Free from many technological constraints, artists are now empowered to implement visuals that closely match the original vision. The focus of artwork is shifting to explore new ideas and art styles that can allow a game to stand out from the competition. The Visual Arts Track focuses on the specific, advanced techniques that will take game art in new directions.

Lecture – Intermediate

Advanced Techniques in Creating Tile-Based Graphics for Gameboy Advance

Karthik Bala & Steve Derrick *See pages 114, 118 for bios*
Saturday, March 8 • 4-5pm
A2, Convention Center

This session is a follow up to last year's session titled "Modern Techniques in Creating Tile-Based Graphics for Gameboy Advance," with an additional focus on tools and innovative art techniques developed for more recent GBA titles.

Some fundamental techniques of game art never seem to go away but we are constantly challenged to take art standards to new levels of quality, within the space allowed, requiring constant innovation with new techniques and effects possible. In a world of millions of polygons, multitexturing, skeletal geometry, real-time lighting, and shaders, there is still the need to know 8-pixel-by-8-pixel tile art creation, limited color palettes, 4-bit and 8-bit art.

Art for the Gamboy Advance with modern tools such as Photoshop, 3DS Max, and Maya can do a whole lot more than the 8-bit and 16-bit days of videogaming. No longer is the GBA a "portable SNES."

This session delves into advanced techniques and processes that can help develop cutting-edge visuals for Gameboy Advance. The speakers discuss the latest methods for optimization of tiles, ideal palette colors for the GBA screen, and real-time 3D polygons in-game. As before, the key to success is a strategy of selectively blending old-school techniques with new ones. Case studies presented during the session include Crash Bandicoot Entranced, X-Men: Wolverine's Revenge, and Tony Hawk's Pro Skater 4 for Gameboy Advance.

Takeaway: Techniques and tips for creating cutting-edge visuals on GBA while working within the limitations of the hardware platform.

Intended Audience: Gameboy Advance artists and developers, or those interested in developing titles for the platform.

Panel – Intermediate

A Review of Current and Future Animation Issues

Erik Medina, Paul Steed, Rob Titus, Oliver Wade
See pages 114-148 for bios
Thursday, March 6 • 3-4pm
B1, Convention Center

As the desire and demand for more complex games and complex game characters grows, so does the knowledge base for creating and implementing their animations. Join some animation experts as they mull over topics facing the game animator today such as:

- Prerendered versus real-time cutscenes
- Different animation software
- Mocap versus keyframing
- Implementing animations
- Future trends

Ten minutes will be spent on each topic with the last ten minutes of the session devoted to Q&A. The audience is encouraged to participate and engage the panel on their knowledge of these animation topics. Attendees walk away with a better understanding of why animation is quickly becoming the make-or-break element in many of today's games.

Panel – Intermediate

Art Directors Panel: Aesthetics and the Almighty Dollar

Steve Caterson, Linda Lubken, Cyrus Lum, Jonathan Peedin, Lee Petty, Steve Reid *See pages 114-148 for bios*
Thursday, March 6 • 9-10am
A7, Convention Center

The goal for this year's Art Directors Panel is to have an in-depth discussion of the conflicting demands on the art director. The panel focuses on issues that arise in the office on a daily basis, and how subjects such as productive creativity, constructive critique and employee morale can be balanced against ship dates, long-term planning, and profitability. The panelists also highlight individual job experiences and discuss general career advice for game artists on all levels.

Roundtable – Intermediate

Art Management for Artists

Doug Oglesby *See page 139 for bio*
Thursday, March 6 • 11:30am-12:30pm
L, Convention Center
Friday, March 7 • 3-4pm
E, Convention Center
Saturday, March 8 • 12-1pm
L, Convention Center

Most lead artists in game companies are given their position based on their artistic abilities, vision, and leadership potential. Unfortunately, many have no significant background in running a team, in motivating people, or in scheduling other artists who have their own ideas about how a project should be designed. This roundtable discusses issues of running a team of artists as lead artist, focusing on topics that inexperienced managers will need to address. Some suggestions will be made, but the point of the discussion is to give participants a chance to share solutions to common problems. How do you develop a good relationship with your engineers? How do you schedule your

visual arts track

own time, and what is reasonable to expect that you will be able to do? What does it mean to be part of a management team? And the tough question: When should I step back and let my artists take over?

Takeaway: Attendees gain a rough framework for thinking about how to organize and facilitate a team of artists. Attendees learn what is expected of a lead artist, and the position's perks and drawbacks. And finally, attendees get practical advice from others.

Intended Audience/Prerequisite: This roundtable is aimed at current lead artists who have little or no experience with managing a project, and at more experienced lead artists who are willing to share their knowledge.

Sponsored by Discreet

Building Better Xbox Titles With 3DS Max 5

See Addendum for speaker
Thursday, March 6 • 10:15-11:15am
C3, Convention Center

Come and discover the latest techniques and technologies for creating stunning real-time environments and characters for Xbox and PC titles. Discreet and NDL will show production artists how to make the most of the hardware's capabilities whilst keeping development costs down and maximizing productivity in this intensive one-hour session.

Takeaway: How to use the latest techniques, how to keep production costs down, how to maximize productivity.

Lecture – Intermediate

Character Rigging and Animation

Martin Coven & Mookie Weisbrod
See pages 118, 147 for bios
Saturday, March 8 • 12-1:30pm
A2, Convention Center

Virtually eliminating forward kinematics, we focus on a rig that is more flexible, and easier to manipulate, with fewer control points. This allows the animator to easily and quickly set the pose instead of fight with the system. This session is broken into two parts. First, we cover all the aspects of creating an IK system for a character in Max. The next section reviews a process of how to better utilize the rig. You'll learn new techniques to help speed up the animation process.

Takeaway: This class should help you in your preparation before building your IK system, as well as the actual construction. You should be able to understand what kind of control will be needed and how to give that control to the animators as easily as possible. You should also come away with a good understanding of how to use this advanced rig and hopefully better your animation skills.

Sponsored by Electronic Arts

Convergence: Feature Film and Games

Bob Nicoll *See page 138 for bio*
Thursday, March 6 • 3-4 pm
A8, Convention Center

Advances in computer technology have fueled a rise in the quality of games and the potential now exists for broadcast quality graphics on these new platforms. Studios are positioning themselves for HiDef broadcast quality games within athree to five year timeframe.

This has not gone unnoticed; senior production talent has recently joined the games industry. All of this coupled with the emotional connection between theplayer and game is changing the dynamics of the entertainment industry. The statistics are trotted out every year: games earnings are comparable to US film box office revenues, the interactive industry has achieved 30% growth year after; but the statistics miss the point: Based on the expansion of knowledge about the craft of games and the incredible explosions in digital technology, the creative people behind computer gaming are learning to provide a fundamentally more compelling entertainment experience than the other media currently in circulation.

This lecture gives examples of changing trends in talent and processes; what we see as what's next.

Takeway: A clearer idea of the directions of the interactive entertainment at EA, and the talent and skills required to get there.

Panel – All

Crack Character Creation: The Mad Puffer Fish Panel

Scott Campbell, David Levy, Rita Street, Charles Zembillas
See pages 114-148 for bios
Friday, March 7 • 9-10am
A7, Convention Center

In an effort to depict the working process of designing an actual game character/hero, this panel has gathered together four of the industry's top artists to participate in the creation of Cuddly: The Mad Puffer Fish. During a rousing and unorthodox panel discussion, the panelists explain their individual approach, show thumbnails, uncover false-starts, discuss breakthroughs, and ultimately unveil their finished designs for Cuddly.

In the months prior to GDC 2003, each panelist took up the gauntlet and signed on as character designers for an imaginary game called The Blow-Up Party. The foursome went through a unique five-step process that mirrors and exposes the real-world creative production mechanisms of both the panelists and their companies.

Takeaway: In addition to practical tools such as advice on how to really listen to a producer's needs, audience members learn, or relearn, Character Design 101. They hear, or rehear, what they should always remember when approaching a new character: to let character personality define body shape, to keep it simple, to allow yourself to go down as many wrong paths and dead-end alleys as necessary, and never to lose faith. All experiments ultimately lead to a usable concept, as long as you never give up.

Intended Audience/Prerequisite: No prerequisite knowledge is needed to enjoy the insanity, trials and tribulations, and massive info-output of the Mad Puffer Fish Panel. It is geared toward artists and producers.

Lecture – Intermediate

Creating Aesthetic 3D Organic Volumes and Using the Right Tools for the Project

Lex Story *See page 144 for bio*
Thursday, March 6 • 3-4pm
A7, Convention Center

Learn modeling techniques that create models of great design and believability. This presentation reveals tips and techniques to help recognize well-executed volumes, as well as how to visualize, conceptualize, execute, and deliver 3D objects that look great. A comparison and analysis of 3D modeling technologies for game development implementation are also discussed with reference to classical sculpting techniques.

Takeaway: Learn to recognize models that communicate good design. Learn modeling tips to build better 3D organic models and utilize classical techniques to correctly build organic objects. Attendees gain exposure to classical 2D techniques that amplify the skills used to build great looking models.

Intended Audience/Prerequisite: Game and cinema artists with experience modeling polygonal, high-order surfaces

visual arts track

(NURBS), and subdivision surfaces, regardless of software package used.

Panel – Intermediate

CREATING CHARACTER MODELS: A REVIEW OF CURRENT TECHNIQUES

Sam Coates, Stefan Henry-Biskup, Dan Johnson, Mai Lea Nguyen
See pages 114-148 for bios
Thursday, March 6 • 11:30am-12:30pm
B1, Convention Center

As the capabilities of gaming platforms continue to explode, the characters in our games are a primary focus for channeling that power. Higher polygon counts, richer texture and material effects, and more sophisticated skeletal rigging are just the surface of the new features we see coming out. Taking advantage of all this power requires skill and experience, experience that will be assembled in one room for this session on this exciting part of making art for games.

This moderated panel of industry artists will share their experience and answer your questions about creating character models for games today: What is the role of reference in model creation? How many bones make the ideal facial rig? What are good techniques for simulating hair in real-time? How can you optimize your UV layout? These are just some of the possible topics we will cover. Bring your own questions and find out how others in the industry are handling them. The focus will be real-world issues and proven practical solutions. Where we go will largely be up to you, the audience. It's a rare opportunity to hear the views and question the experts in the world of character modeling.

Roundtable – Intermediate

CREATING, MAINTAINING, AND IMPROVING 3D ART PRODUCTION PIPELINES

Christopher Clay *See page 117 for bio*
Thursday, March 6 • 9-10am
L, Convention Center
Friday, March 7 • 9-10am
E, Convention Center
Saturday, March 8 • 9-10am
L, Convention Center

This roundtable is focused on sharing information about effective tools and techniques that increase the flexibility and/or efficiency of 3D art pipelines that are being created or are currently in production. The discussion should flow between what has worked and hasn't worked based on the participants' experiences. The discussion is aimed not at comparing each individual tool or technique but at stressing how each of these stands on its own or works in conjunction with others.

All sections of a 3D art pipeline should be considered fair game for discussion, but the following topics are suggested:

- The advantages and disadvantages of different 3D art creation packages
- Useful plug-ins that accentuate the creation of 3D art
- Common pitfalls to avoid when laying the foundation of a 3D art pipeline
- Techniques or tools that allow an art pipeline to adapt quickly to an evolving game engine with a minimal amount of rework
- Techniques or tools that accelerate the production of models, textures, setup, and animation work
- Pros and cons of using a second in-house tool for final art integration into the game versus having all integration steps in the base 3D package
- Pros and cons of having team members on large-scale projects specialize in working on individual steps of the process, such as modeling, texturing, animation, setup, and integration
- Ways of integrating game systems engineers and designers into the art pipeline to ensure the ready flow of information about what needs to be done and what is done from one department to the other.

Finally, the session focuses on the merits or shortcomings of tools and techniques themselves, and the discussion will be led away from devolving into flame wars between the supporters of competing elements.

Takeaway: Attendees should walk away from this session with new insight into ways 3D art production pipelines can be created to meet the high output needs of today's high-content games. They gain knowledge of tools and techniques that have both succeeded and failed to meet the demands of production past and present. The roundtable should equip the participants with new ideas and tools they can use to improve the 3D art production pipeline they're currently using.

Intended Audience/Prerequisite: The people attending this roundtable should have experience in working with, creating, or maintaining a 3D art pipeline on a project that is currently in production, or that has recently completed.

Panel – Intermediate

EFFECTS: STATE-OF-THE-ART TECHNIQUES

Scott Dalton, John Versluis
See pages 118, 146 for bios
Friday, March 7 • 10:30-11:30am
A7, Convention Center

This panel explores the ideas, techniques, and implementation of real-time effects for the latest state of the art in games. The panel focuses on the effects around two titles, UNREAL 2, with Panelist Scott Dalton from Legend Entertainment, and HALO 2, with Marcus Lehto from Microsoft. John Versluis, effects programmer and artist for Inevitable Entertainment, leads the discussion as the moderator.

Lecture – Intermediate

EXTREME CHARACTER RIGGING: WHEN LESS IS MORE

Steve Theodore *See page 145 for bio*
Thursday, March 6 • 4:30-5:30pm
B1, Convention Center

As character animation tools get more and more sophisticated, the process of rigging characters has become ever more involved. Our characters get more and more capable but also more and more complex. Unfortunately, as complexity increases, we also run the increasing risk of losing flexibility. Our projects evolve in unpredictable ways, and our fabulous rigs can stop being helpful and instead get in the way of creativity, artistry, and even meeting deadlines.

visual arts track

"Extreme Rigging" advocates a lean, mean, decentralized approach to character setup. The presentation stresses the value of rigging models for particular shots as an alternative to complex, all-purpose rigs. The key virtues of the Extreme Rigging approach are flexibility, speed, and careful choice of rigging tools for each job. This discussion explains the basic techniques of Extreme Rigging and explains when Extreme Rigging is a good alternative to traditional character setup. It also demonstrates how Extreme Rigging can help you be a better animator, even if you work with a traditional setup.

The lecture catalogues a set of strategies for doing quick and dirty rigs for particular jobs, and also a set of criteria for matching particular rigging techniques (IK, expressions, constraints, and so on) to appropriate situations. Finally, the lecture outlines the pros and cons of integrating Extreme Rigging into a production pipeline.

This presentation assumes a good working understanding of character setup techniques.

Lecture – Advanced

Facial Animation for Game Characters

Tito Pagan *See page 139 for bio*
Saturday, March 8 • 9-11am
A2, Convention Center

When used in a story-driven game, facial animation of a character usually ends up being a big part of what audiences see on the screen: Dialogue comes out of the character's mouth, and there is a wide range of nonverbal communication that can be achieved with facial expressions. Yet given its importance in romancing an audience and delivering the story, the alluring cinematic approach commonly used in Hollywood movies and television has been too expensive and technically challenging to many in the game industry.

This lecture attempts to demystify the daunting task of creating expressive animated faces that engage with personality and hold up nicely upon closer inspection. It covers a production-oriented approach to creating convincing facial animation of high-profile game characters. It also takes a close look at some facial animation systems and techniques commonly used today to help reduce the workload of small development teams faced with having to animate a multitude of facial expressions, emotions, and lip-synching.

Learn which attributes in human emotion are essential to achieving realistic facial animation. Be exposed to common libraries or dictionaries of phonemes used in lip-synching. See firsthand examples of work and practices that have employed such methods and theories. These methods are described clearly with examples and without being too vague or highly specialized.

The lecture also reviews attributes in human emotion that are essential to achieving realistic facial animation. Technically speaking, the presentation steps the audience through an art path for constructing well-detailed 3D models suitable for facial animation while being mindful of optimization and art path issues such as polygon budget, texture resolution, proper skeletal structuring and rigging, and other animation requirements, all within 3DS Max 5. The outlined process is presented with an emphasis on good time management. It demonstrates several tips and tricks and makes recommendations on where to focus production and creative time and effort.

Takeaway: The audience leaves with a deeper appreciation of the scope of work that this typically tedious yet rewarding responsibility requires. They are made aware of common methods and off-the-shelf products the competition is using in a production environment. The attendee also learns of proven methods of animating faces that result in shorter time requirements for rigging and animating complex organic character heads using 3DS Max. Such savings afford them more time to embellish facial animation of their game hero or villain.

Intended Audience: Computer artists tasked with preparing and animating original CG characters for prerendered cutscenes, real-time cinematics, or any other 3D visualization technology featuring human avatars.

Sponsored by Nvidia

From Gaffer to Game Engine: Cinematic Methods & Real Time

Kevin Bjorke *See page 115 for bio*
Friday, March 7 • 12-1pm
A1, Convention Center

The newest generations of graphics hardware, combined with new flexible shading languages, have placed unprecedented imaging power in the hands of game developers. Polygonal complexity and complex shading capabilities and languages are starting to rival those used for high-end feature filmmaking. Methods and tricks from feature film and broadcast computer graphics can now be used in games, even as new game-driven hardware capabilities stand poised to revolutionize the economics and methods of offline rendering.

Lessons learned from high-end film and television production, which in turn are built upon generations of cinema practice, theatre, photography, and painting, are brought to bear on game-level hardware and present new creative, expressive possibilities for game and film makers. The rapid convergence of methods and techniques are directly illustrated using examples from both the film/offline worlds and demos running on the latest hardware engines.

Takeaway: Game graphics is moving rapidly toward the same high imaging standards now found in films and television. Many of the tricks learned in years of computer and live-action filmmaking can now be applied directly to gaming, often for the same purposes. New game-driven technologies like DirectX 9 and CineFX make these leaps both possible and practical.

Intended Audience: The general game and animation development community can find this talk useful. Programmers will find solid examples of useful ways to approach difficult lighting and staging situations using new hardware shading languages, while artists and art directors will discover how new game technology can be brought to bear on classical art problems of representation and expressiveness.

Lecture – Intermediate

Hardware Shaders for the Artist

Steve Burke & John Versluis
See pages 116, 146 for bios
Saturday, March 8 • 2:30-3:30pm
A2, Convention Center

It is now possible to view and configure hardware shaders inside popular 3D applications such as 3DS Max, Maya, and XSI. This lecture shows game artists how to take advantage of that ability to both speed the production of their art assets and to give the art team more creative control. These tools allow artists to play a significant role in an area of games that, for many studios, has remained the domain of the programming team.

This presentation provides several examples of how shaders are brought into each of the 3D applications, configured by the artist, and brought into a target game engine. The lecture also presents several examples of what shader effects are possible and tips on working with the

visual arts track

programming team to strike a good working balance between the technical and creative elements of a development team.

Lecture – All

How to Build a Better Cutscene

Adam Schnitzer *See page 143 for bio*
Thursday, March 6 • 10:15-11:15am
A2, Convention Center

This lecture dispenses practical advice for producing cutscenes. Economical and efficient production methods are outlined, with emphasis on cinematic design through the use of storyboards, animatics, videomatics and layout. Clarity, drama, and efficiency are the three goals for cutscenes.

Using the Pixar production pipeline as a model, we explore an art path that moves step by step from quick and inexpensive methods of visualization toward the final, refined version of each shot. Optimization techniques to allow for conservation of resources and timely rendering are described. Visual storytelling basics, such as the stage line, screen direction, and principles of good editing are discussed. Pros and cons of prerendered versus in-game cutscenes are analyzed.

A brief history of cutscenes and their various purposes is explored, leading to a discussion of when cutscenes are appropriate, and how to transition in and out of them during gameplay. Finally, some attention is given to current and future innovations.

Takeaway: Learn the history and purposes of cutscenes and their proper place in a game. Discover a step-by-step cutscene production pipeline for efficient cutscene creation and cinematic guidelines for clarity, drama, and efficiency. Explore techniques for moving from gameplay to the cutscene and back again, and ideas for future innovation.

Intended Audience/Prerequisite: Game designers, managers, animators, and production artists can all benefit from this talk. General familiarity with games and 3D software packages is helpful.

Roundtable – Intermediate

Making Fantastic Art Fast

Walter Park *See page 139 for bio*
Thursday, March 6 • 4:30-5:30pm
E, Convention Center
Friday, March 7 • 10:30-11:30am
D, Convention Center
Saturday, March 8 • 12-1pm
E, Convention Center

Quality content is continually increasing. We must do more high quality work in less time than ever before. The problem only gets worse as the capacity of game hardware increases. How can we take full advantage of these machines in a timely, cost effective way? How can we fill our games with fantastic, detailed, immersive art? Innovations in art production are key to meeting these demands. This roundtable is a chance for artists to share ideas and methods for squeezing more and better art into our games. The roundtable focuses on topics such as modular assets, effective preproduction, procedural content creation, and art outsourcing, in an effort increase our capacity to create fantastic art fast.

Sponsored by Softimage

The Next Generation of Game Characters—Exploring Creation Techniques: (1) Emerging Character Surface Creation Techniques

See addendum for speaker
Thursday, March 6 • 11:30am-12:30pm
C3, Convention Center
Modern game platforms offer a wide range of sophisticated graphics technology, introducing new challenges for development teams wishing to effectively exploit the potential of these platforms.

This presentation is one of three related presentations investigating emerging character creation techniques and production workflow, designed to help artists and developers turn emerging technologies into robust production workflow and efficient studio process. The three presentations combine to cover the creation of characters that maximize use of hardware accelerated surface effects, advanced rigging and enveloping systems, and can be output into efficiently optimized runtime structures.

With the focus on emerging techniques for constructing surfaces and effects of characters for next generation games, this session covers modeling, texturing and shader creation techniques, and looks at practical ways to integrate complex effects creation efficiently into the 3D art production process.

Takeaway: Attendees learn about new tools and techniques for effectively exploiting advanced rendering effects, including effective exploitation of Cg-based shading effects, and hardware accelerated shading techniques.

Intended Audience/Prerequisite: Attendee has experience in the modeling and texturing of characters for games, either as a 3D artist, art director or art-integration developer.

Sponsored by Softimage

The Next Generation of Game Characters—Exploring Creation Techniques: (2) Advanced Character Rigging and Animation

See addendum for speaker
Friday, March 7 • 3-5:30pm
A8, Convention Center
Modern game platforms offer a wide range of sophisticated graphics technology, introducing new challenges for development teams wishing to effectively exploit the potential of these platforms.

This presentation is one of three related presentations investigating emerging character creation techniques and production workflow, designed to help artists and developers turn emerging technologies into robust production workflow and efficient studio process. The three presentations combine to cover the creation of characters that maximize use of hardware accelerated surface effects, advanced rigging and enveloping systems, and can be output into efficiently optimized runtime structures.

This session: This session begins by exploring the use of

visual arts track

high-level animation tools and intelligent skeletal systems aimed at improving animation control and productivity. This section is followed by an exploration of solutions to the hard problem of retargeting animation created on high-level animation rigs into optimized performance-centric structures.

Takeaway: Attendee is introduced to advanced rigging and animation techniques that can dramatically simplify the animation creation process.

Intended Audience/Prerequisite: The attendee has experience in the rigging and animation of articulated characters for games, either as a 3D artist, art director or art-integration developer.

Lecture – Intermediate

Relinquishing Control: Giving Programmers Control of Your Animation Assets

David Stripinis *See page 145 for bio*
Thursday, March 6 • 9-10am
B1, Convention Center

In days of old, not much thought was given to creating animation hierarchies for game characters. But just as artists have been given larger texture sheets and more polygons to create with, so too have they been given the ability to use more complex skeletal setups. In this all day class, we explore not only the basic process of creating a good character rig, but also how character design, modeling and pipeline all play a role in the evolution of a rig. Special emphasis is placed on not just creating a rig that works well for an animator, but works well in a game environment as well.

Topics to be covered include:

- creating a setup for facial animation with bones
- adding programmer control to a skeleton
- muscle flexion
- using Set Driven Keys and expressions for deformation
- skeleton optimization
- creating custom character user interfaces
- optimizing your pipeline to deal with character specific issues.

Intended Audience/Prerequisite: Attendees should have at least a basic understanding of operating in Maya, as well as a familiarity with the basic technical requirements of next-gen game characters like this.

Panel – Intermediate

State of the Art: Building 3D Environments and Mooels Review Panel

Scott Dalton, Tareh Kryger, Ian Milham, Steve Theodore, Chris Williams
See pages 114-148 for bios
Thursday, March 6 • 10:15-11:15am
B1, Convention Center

The world of traditional art moves slowly; it took decades for technological innovations like motion pictures, photography—even premixed paint in tubes—to become assimilated into the artistic mainstream. Game artists, on the other hand, live in constant technological flux. Every year brings better and faster hardware, updated tools, and a wider horizon of artistic possibilities. It also brings enormous challenges, from simply learning how to operate our fancy new gadgets to actually trying to make art in unexplored territory with untested tools. This panel brings together artists from a number of fields to discuss developments in 3D modeling, texturing, and real-time rendering with a particular emphasis on building real-time environments. We'll be considering the interactions of artistic vision, technological change, and the production process from the perspective of working artists. From polygon counts to pixel shaders to the best way to structure a team for modern game development, our panelists will share their experiences in games such as Halo 2, Unreal 2, and Star Wars: Bounty Hunter.

Lecture – All

Stepping Away From the Pack: Resources and Methods for Developing Art Styles That Are Memorable and Attention Grabbing

Doug Oglesby, David Rose
See pages 139, 141 for bios
Friday, March 7 • 12-1pm
A7, Convention Center

How can we develop new visual styles in games? Many of the games out there today focus on adding more and more realism. Realism definitely has its place, but what other ground can be explored? There are almost infinite ideas and resources that we can pull from to break new visual ground. What are the influences that can be drawn from? This session focuses on the creative process, how to begin, and possible avenues to explore. This lecture is for the most part theory-based and presented to pose questions. The instructor asks for audience participation near the end of the lecture in some creative exercises, so attendees should bring a pencil and a few pieces of paper.

Takeaway: Learn ways to develop new visual styles in games and the steps to take in the process of creation. What possible resources are out there to draw from? What are the ways to filter what is useful out of resource materials? Methods to utilize those visual resources to help solve practical problems in game development are presented.

Intended Audience: Anyone interested in developing new and different visual styles in game development.

Sponsored by Discreet

3DS Max 5 and the PlayStation 2 Pipeline

See Addendum for speaker
Friday, March 7 • 4:30-5:30pm
C3, Convention Center

PlayStation 2 developers discover how Discreet and Criterion work together to create a highly efficient production pipeline that improves time to market, makes for a more productive environment, and helps production artists focus on the final outcome rather than the production process with 3DS Max's integrated approach to creating and managing game-ready data.

Takeaway: Efficient production pipeline, how to keep production costs down, maximizing productivity

Roundtable – Intermediate

Tools and Prooduction Techniques of 2D Level Art for Gameboy Aovance

David Rose *See page 141 for bio*
Thursday, March 6 • 10:15-11:15am
L, Convention Center
Saturday, March 8 • 4-5pm
E, Convention Center

This is a discussion about techniques and tools for production of 2D levels on the Gameboy Advance. Discuss with the group ways to develop levels on the system. The topics cover many aspects of production.

Sharing common problems and possible solutions is at the core of the discussion. The topics start with a discussion on where to begin. Where is inspiration drawn from? How do you choose look and feel? What considerations should be made for look and feel based upon the system? How can we work with engineers and designers to improve and maximize the quality of the environments? How do we deal with system limitations? How do we deal with perspective and scale issues? What trade-offs should be made in terms of appearance in order to make the production and gameplay of the game efficient?

visual arts track

The discussion then leads into texture production and tools. What shortcuts can be taken to make great textures? How can we maximize reusability? What tools seemed to work well? What were the likes and dislikes of various tools used? How could they be improved upon? What do we consider essential features? What can be done to improve level production industry-wide?

Takeaway: Acquire better knowledge of how to produce 2D level artwork for the Gameboy Advance more effectively. Hear about methods that other people in the industry are using and ways to preplan better. The tools that are be most useful to them for the development of level art and the pitfalls of GBA level production and how to avoid them are discussed.

Intended Audience/Prerequisite: Anyone interested in the art production of 2D levels on the Gameboy Advance is welcome. People who have had experience in the past would be very helpful to contributing to the discussion.

Lecture – Intermediate

The 12 Principles of Traditional Character Animation Applied to 3D Computer Animation

Isaac Kerlow *See page 130 for bio*
Saturday, March 8 • 9-10am
A7, Convention Center

The "12 Principles" were developed in the early 1930s by animators at the Walt Disney Studios to lay the ground rules of character animation. While these principles are still relevant and useful, it is time for a few updates and a few new additional principles that address the techniques and styles unique to 3D computer animation. This presentation uses classic and contemporary examples to analyze these timeless animation guidelines and to suggest ways to implement them in 3D computer animation.

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speaker bios

Espen Aarseth
Espen Aarseth is associate professor of humanistic informatics at the University of Bergen, holds an adjunct position in media studies at the University of Oslo, and is editor-in-chief of the first academic journal on computer games, *Game Studies* (http://gamestudies.org). Espen's best-known book is *Cybertext* (Johns Hopkins UP, 1997), and he founded the Digital Arts and Culture series of international conferences in 1998. He has been teaching about digital games since 1993 and playing them for much longer. **Tutorial: (150) IGDA Academic Summit** *See page 28*

Rod Abernethy
Rod Abernethy is owner of Slackmates, an award winning audio production team that's created music and SFX for many national TV spots such as McDonalds, Nintendo, AT&T, Audi, Bell Atlantic and Nike. Rod graduated from U.N.C. in Chapel Hill, NC, in music performance and composition, spent many years performing in various 80's rock bands, and recorded with Arrogance for Warner Bros. and Glass Moon for MCA and Elektra. Rod's original musical styles cover a wide range of influences from classical to folk/country to electronica. In the early 90's, Rod and Dave Adams started the creative team, Slackmates. Rod and Dave have a broad knowledge in analog and digital music production, having their own full service studio in North Carolina. Rod and Dave were speakers at the 2002 GDC in San Jose, speaking on how to adapt filmscores to video games, using a case study of how they adapted Elmer Bernstein's movie score "Wild Wild West" into the video game for Warner Bros. **Panel: Does Melody Matter?** *See page 37*

Dave Adams
Dave Adams, composer, sound designer and one half of the production team Slackmates has composed music for games, TV and radio commercials, and planetarium shows. Adams has recorded and released albums for Atlantic Records, MCA and Elektra. During the making of the 1984 Glass Moon album for MCA, he worked with legendary producer David Lord (Peter Gabriel, XTC). Dave joined Rod Abernethy in 1993 to create the music and sound design team Slackmates. Video games recently completed include the titles THE WILD WILD WEST for which Dave adapted Elmer Bernstein's score, as well as composing original themes into the score. Other recent game music and sound design credits includes Dark Side of the Moon and 20,000 Leagues Under the Sea. As of this year, Slackmates have scored broadcast music for clients such as Audi, Allstate, ESPN, McDonalds, MacGregor Golf Clubs, and Bell Atlantic. Slackmates are currently working on original orchestral scores for The Hobbit for Gamecube, developed by Inevitable Entertainment and published by Sierra. **Panel: Does Melody Matter?** *See page 37*

Ernest W. Adams
Ernest Adams has worked in the interactive entertainment industry for 14 years. He is currently a design consultant based in England and a member of the International Hobo game design consortium. Ernest was most recently employed as a lead designer at Bullfrog Productions, and for several years before that was the audio/video producer on the Madden NFL Football product line at Electronic Arts. In a much earlier life Ernest was a software engineer. He has developed on-line, computer, and console games for everything from the IBM 360 mainframe to the PlayStation 2. He was a founder of the International Game Developers' Association, and is the author of the popular Designer's Notebook series of columns on the Gamasutra developers' webzine. **Lecture: Exploring the Fringes: Interactive Entertainment for the 21st Century** *See page 57* **Tutorial: (150) IGDA Academic Summit** *See page 28*

Murray Allen
See www.gdconf.com for bio. **Panel: How to Mix Discrete Surround Sound for PlayStation 2** *See page 38*

Brian Allgeier
Brian Allgeier is the design director at Insomniac Games. He began working in game development in 1991 as an animator and artist on CD-I titles for Philips Interactive Media. When the lead designer of his team left, Brian started calling himself a designer and surprisingly everyone believed him. Brian later joined Blue Shift Inc, contributing chiefly as a designer, but also wore other hats including character design, environment modeling, and scripting tools. At Insomniac Games, Brian focused on level design for the second and third installments of the Spyro the Dragon series: Spyro: Ripto's Rage and Spyro: Year of the Dragon. He became design director during the production on Ratchet and Clank and is still expecting someone to point out his "artist pretending to be a designer" ruse. In addition to heading the design department, Brian's responsibilities include enemy behavior and level design. **Lecture: Designing a Ratchet and Clank Level** *See page 56*

Michael Anderson
Michael Anderson has been at Microsoft since 1993. After working on some cool apps for kids, including 1995's "3D Movie Maker," he moved to the DirectX team in 1997. He is responsible for the Direct3D samples that ship with the DirectX SDK, and has written several SDK tools including DxDiag, DxTex, EffectEdit, and D3DSpy. **Tutorial: (211) Microsoft DirectX Developer Day** *See page 33*

Randy Angle
Randy Angle, a fan of toys, comic books, cartoons, action movies, and humorous scifi-fantasy, has been an avid gamer, creating fantasy worlds and games on paper and computers since 1977. Randy has also published several articles and has given presentations at industry conventions on game design, programming and project management. After more than 10 years in the game industry as lead designer on the console versions of ST:TNG and LEGO MyStyle for the PC/MAC, as well as lead programmer on several PlayStation and PC titles and technical director on LotR for PlayStation 2 and Xbox; Randy formed Pronto Games to develop small, fast and fun games (SmaFF). With clever planning and careful attention to details Randy and the Pronto team were able to stuff the classic PC, Dungeons & Dragons: Eye of the Beholder into a Gameboy Advance complete with 1st person exploration and isometric combat using the new Dungeons & Dragons 3rd edition rules, the evolution of the Dungeons & Dragons gold box games. **Tutorial: (102) Effective Project Management** *See page 29*

Marwan Y. Ansari
Marwan Y. Ansari is a member of the 3D Application Research Group at ATI Research, Inc. He has a masters in computer science from the University of Illinois at Chicago where he studied 3D graphics, image processing, and machine vision under Dr. Francis Quek. **Sponsored Session: Video Image Processing using Shaders** *See page 102*

Dave Astle
Dave Astle is the executive producer of GameDev.net and a programmer for Samu Games. **Sponsored Session: Leveraging Online Resources to Make it as an Indepenoent Game Developer** *See page 47*

Dan Ayoub
Dan Ayoub has worked in the game industry in positions ranging from business development to production, in such areas as PC, console, internet-based, and wireless gaming. An avid gamer since the age of 12, Dan's passion for gaming saved him from a career in the rail industry and he has never looked back. Dan is currently a producer for Ubi Soft Entertainment in Montreal and is working away at an unannounced product **Roundtable: Promotion/Marketing Best Practices** *See page 71*

Kevin Bachus
Kevin Bachus is vice president of publishing and a founding partner of Capital Entertainment Group, the computer and video game industry's first independent production company. CEG maximizes the potential of top-tier developers by managing the development of innovative, premium quality games in partnership with the worldwide publishing community. Prior to helping start CEG, Kevin was director of third-party relations for Xbox at Microsoft Corporation and a founder of the Xbox project, an initiative that grew in part out of his role as group product manager for DirectX. **Sponsored Session: Hollywood or Bust: The Future of Team Development** *See page 78*

Clint Bajakian
Clint Bajakian is a composer, sound designer and producer with 11 years game industry experience. Clint is co-owner of The Bay Area Sound Department with Julian Kwasneski, providing music, sound and voiceover production services with an emphasis on interactive media. Prior to The Sound Department, Clint was a composer and sound design supervisor at LucasArts Entertainment. His score for Outlaws won an Outstanding Achievement Award from CGW in 1996. His score for Escape from Monkey Island was a finalist in the Academy of Interactive Arts and Sciences 2001 music category, and his orchestral score for Indiana Jones and the Infernal Machine was nominated in 1999 for the same award. Clint is vice-president of G.A.N.G. (Game Audio Network Guild), and serves on the steering committee of the IA-SIG (Interactive Audio Special Interest Group). Clint holds a master of music degree in music composition from the University of Michigan. **Lecture: What Producers Should Know About Audio** *See page 82*

Karthik Bala
Karthik Bala has led Vicarious Visions since its formation in 1994. Karthik has been in the gaming business for ten years and has had diverse roles ranging from programming to art/animation to marketing and public relations. To date, Karthik has over 40 published game titles to his credit on a variety of different platforms. Recent titles include the award winning Star Wars Jedi Knight II: Jedi Outcast for Xbox and Gamecube, Tony Hawk's Pro Skater 2, 3 and 4 for Gameboy Advance, Spider-Man 2 for PlayStation and Crash Bandicoot for Gameboy Advance. Karthik holds degrees in both computer science and psychology from Rensselaer Polytechnic Institute. **Lecture: PC to Console: Bringing Star Wars Jedi Knight II: Jedi Outcast to Xbox and Gamecube** *See page 61* **Lecture: Advanced Techniques in Creating Tile-Based Graphics for Gameboy Advance** *See page 106* **Lecture: Branos Branos Branos: Working with High Profile Licenses and Still Making a Great Game!** *See page 96*

Paul Baldwin
Paul Baldwin joined the Eidos team in 1993 after working for renowned sports agent Leigh Steinberg doing player research. Paul has been with Eidos for over 9 years in the following roles: PR manager, national sales manager and current role of VP of marketing, which he has held since 1996. Paul was a vital part in the negotiations of bringing Tomb Raider and Deus Ex to the big screen. In addition to managing North American marketing, Paul is also responsible for all channel marketing and MDF. **Sponsored Session: How to Turn Your Game IP Into a Movie** *See page 46*

speaker bios

Luis Barriga
Luis Barriga is a game designer at Vicarious Visions where he has worked on projects including Spider-Man: Mysterio's Menace, Crash Bandicoot: The Huge Adventure and Tony Hawk's Pro Skater 2. Previously, Luis interned at Microsoft as a software test engineer on games such as Age of Empires II and Urban Assault. Luis is currently continuing development on additional Gameboy Advance titles. **Lecture: Bossy Behavior: Patterns and Techniques in Boss Design** *See page 54* **Panel: Profiling the Female Gamer: A Look at How She Buys and Plays** *See page 54*

Dave Bartolomeo
Dave Bartolomeo has been with Microsoft since 1997, originally as a developer and development lead on the Visual C++ team where he helped ship Visual C++ 6.0 and Visual C++ .NET. In 2001, Dave combined his experience writing developer tools with his interest in game development and joined the Windows Third-Party Gaming team, where he has developed the DirectX extensions for Visual Studio .NET. When he's not writing tools to make game development easier, Dave roams the earth helping game developers take maximum advantage of all that DirectX and Windows have to offer. **Tutorial: (211) Microsoft DirectX Developer Day** *See page 33* **Sponsored Session: Screaming at the Machine: Using Speech Recognition as a Complement to Traditional Game Input Technique** *See page 101*

Hal Barwood
Hal Barwood is a project leader at LucasArts Entertainment, where he was designer, writer and team leader on Indiana Jones and the Fate of Atlantis, a PC adventure game, Big Sky Trooper, a Super Nintendo RPG, Indy's Desktop Adventures & Yoda Stories, a pair of PC desktop diversions, and Indiana Jones and the Infernal Machine, a real-time 3D action-adventure. In addition, he directed the live action video for Rebel Assault II, a STAR WARS combat game. He is currently working on a new slam-bang tale. Before Hal began building games, he spent twenty years in Hollywood as a writer *Sugarland Express*, writer-producer *Dragonslayer*, and writer-director *Warning Sign*. **Panel: Story Summit** *See page 62*

Bob Bates
Bob Bates began his game writing career at Infocom in 1986. Since then he has written, co-designed, produced, or otherwise assisted the development of more than 25 games that have won over 40 industry awards, most notably the 1993 Adventure Game of the Year award, for Eric the Unready. In 1989 he co-founded Legend Entertainment, where he is still an active designer and studio head.

Bob is a frequent speaker at industry conferences and events, the co-founder of the Game Designers Workshop (an annual conference of storytelling game designers), and he is also the author of the industry's best-selling book on game development, entitled *Game Design: The Art and Business of Creating Games*, published by Premier Press. **Panel: Story Summit** *See page 62*

Curtis Beeson
Curtis Beeson joined the demo group of Nvidia Corporation from SGI over 4 years ago and focuses on the art path, object model, and DirectX renderer of their demo engine. He began working in 3D while attending CMU, where he generated environments for playback on head mounted displays at resolutions that left the user legally blind. **Sponsored Session: Ogres & Fairies: Secrets of the Nvidia Demo Team** *See page 96*

Dominik Behr
Dominik Behr is a software engineer working in the applied engineering group at ATI Research. **Sponsored Session: Maya/Max to DX/GL: Translating Native Materials for Real-Time Applications** *See page 95*

Matthew Bellows
Matthew Bellows has worked in telecom and the Internet since 1995. Before co-founding Wireless Gaming Review, Matthew was director of business development for Engage. At Engage, Matthew managed the team responsible for 4,000 advertising contracts that drove $30 million in annual revenue. Before entering the Internet advertising world, Matthew was vice president of sales and marketing at InterStep, a leading email services firm. Matthew received his MBA with high honors from the Olin School of Management at Babson College. **Panel: Three Great Mobile Games** *See page 63* **Panel: How to Take Your Mobile Game to Market** *See page 46*

Brian Benincasa
Brian Benincasa is a technical evangelist for the Windows 3rd Party Gaming & Entertainment group at Microsoft. On a daily basis, Brian manages the relationships Microsoft has with over 150 PC game developers and publishers to aid them in creating killer content for the Windows platform. Brian also oversees the analysis and presentation of market research data, trends, and opportunities for Microsoft executive management. **Sponsored Session: Opportunities in the PC Gaming Marketplace** *See page 97*

Scott Bilas
Scott Bilas works at Gas Powered Games where he focuses on architecture and builds back-end gaming systems. Scott has been published in *Game Developer* magazine and *Game Programming Gems*, and edited a section of *Game Programming Gems II*. He also thinks lectures are fun, and has given several GDC talks in past years. **Lecture: The Continuous World of Dungeon Seige** *See page 89*

Lars Bishop
Lars Bishop is chief technology officer for NDL, makers of the NetImmerse 3D game engine for PC and game consoles. He joined the company in 1996 and is the company's software architect, currently working on development of next generation NDL products. He specializes in 3D rendering technologies, particularly on handheld devices. He received an Sc.B. in mathematics and computer science from Brown University (1994) and an M.S. in computer science from the University of North Carolina at Chapel Hill (1996). **Tutorial: (206) Essential Mathematics for Games Programmers** *See page 32*

Leslie Biskho
Leslie Bishko is a computer animator, Certified Laban Movement Analyst, and associate professor of animation at the Emily Carr Institute of Art & Design.

Leslie holds a BFA, animation, from the University of the Arts and an MA, computer graphics, from ACCAD at Ohio State University. Leslie moved to Canada to research the design of a computer animation interface based on Laban Movement Analysis at Simon Fraser University. As an outgrowth of her interest in combining animation and dance, she became certified as a Laban Movement Analyst and continues to apply this movement theory to her work and teaching.

Leslie has published articles on animation in *Animation Journal*, *Animation World Magazine*, FPS and the *ASIFA Canada* magazine. Gasping for Air, her award-winning computer animated short, has screened at numerous international animation festivals. Leslie is currently working on several short animated films and teaching Laban for Animators workshops. **Tutorial: (202) Making Characters Move: Expressive Character Acting through Laban Movement Analysis** *See page 31*

Staffan Björk
Staffan Björk is a Ph.D. in informatics with a background in computing science. He was one of the initial members of the PLAY group of the Interactive Institute in Sweden and has been director for the studio since the autumn of 2001. Staffan's research interests include design patterns in games, ubiquitous computing, information visualization, and the use of emergent narratives in computer entertainment. His work has been published in SIGGRAPH, ACM CHI, ACM UIST, IEEE Information Visualization, IEEE ISWC, HUC (now UbiComp), AVI and Interact. He is currently co-chair for the Short Talks & Interactive Posters at SIGCHI 2003, Community of Practice Liaison for the Games Community for the CHI 2003 conference, one of the guest editors for a special issue on Ubiquitous Games in the journal *Personal and Ubiquitous Computing*, and dissemination officer of the Digital Games Research Association (DiGRA). **Lecture: Game Design Patterns** *See page 58*

Kevin Bjorke
Kevin Bjorke works in developer relations at Nvidia writing shaders for next-generation hardware rendering. Before joining Nvidia he had a long history in films, games, and other computer-animation venues, including the films *Toy Story*, *A Bug's Life*, and recently *Final Fantasy* and *Animatrix*, where he developed and supervised camera, lighting, and shading work. **Sponsored Session: Programming the GPU using Cg** *See page 99* **Sponsored Session: From Gaffer to Game Engine: Cinematic Methods & Real Time** *See page 109*

Jim Blackhurst
Jim Blackhurst is co-founder and creative director of Hailstorm, an independent mobile games studio based in Banbury, North Oxfordshire. Hailstorm has developed mobile games over many different platforms, including J2ME, WAP, HDML, and SMS as well as providing two launch titles for the European iMode implementation. Hailstorm has achieved commercial success in many territories, most notably in North America where every major network operator in the US and Canada carries theirr games through a distribution deal with their partner, Airborne Entertainment. Hailstorm also works with Mobile Scope AG, Cash-U and TTPcom in Europe, and will be announcing partnerships for J2ME content shortly. Jim has over six years experience developing and deploying interactive content, and a BSc Hons in creative and scientific visualisation from the University of Teesside. Previous to Hailstorm, Jim was working in the virtual exhibition industry, building large-scale database driven 3D environments on the web. Hailstorm are active members of several industry organizations, and Jim is proud to hold the current chair of the TIGA Mobile SIG. **Panel: Three Great Mobile Games** *See page 63*

Seamus Blackley
See www.gdconf.com for bio. **Panel: Effective Evaluation of Middleware** *See page 77*

Jonathan Blow
Jonathan is a game technology consultant.
Lecture: Experimental Gameplay Workshop *See page 57*

David Blythe
David Blythe has worked in the 3D graphics field for the last 12 years, including serving as chief engineer at Silicon Graphics, a representative at the OpenGL Architecture Review Board, editor for the OpenGL ES specification, and a frequent SIGGRAPH course presenter. While at Silicon Graphics, David contributed to the development of the RealityEngine and InfiniteReality graphics systems. He has worked extensively on implementations of the OpenGL graphics library, OpenGL extension specifications, and high-level toolkits built on top of OpenGL. David's other interests include embedded and system-on-a-chip design, mobile devices, and wireless networking. David is currently a system architect at BroadOn Communications. **Sponsored Session: OpenGL ES: Bringing 3D Gaming to Cell Phones** *See page 96*

Steve Bocska
Steve Bocska has six years' experience as a producer, designer, and writer. He has recently worked on video game titles at Disney Interactive and Black Box Games. Steve is currently working for Radical Entertainment in Vancouver, Canada. **Lecture: Temptation and Consequence: Dilemmas in Videogames** *See page 63*

Chris Borders
Chris Borders has been a voice-over director in LA for over eight years in videogames, TV commercial productions, and film. He has managed casting, talent negotiations, voice direction, and sound supervision to produce the voice-over on more than 40 videogame titles. Chris's game credits include five iterations of Baldur's Gate, Icewind Dale, Giants: Citizen Kabuto, Fallout Tactics: Brotherhood of Steel, VR Baseball, and several Star Trek titles. Chris maintains close working relationships with every top talent agency in Hollywood, the leading voice actors in the field, the actors' guilds, and sound studios throughout the LA area. **Lecture: The Seven Secrets of Voiceover Prooduction** *See page 40*

speaker bios

Sarah Boulian
Sarah Boulian works at Gas Powered Games where she leads a team of five level designers responsible for creating 3D fantasy worlds for Gas Powered Games' proprietary game engine. Sarah has worn many hats during her four years at Gas Powered Games while working on her first published title, Dungeon Seige. **Lecture: Creating the Worlds of Dungeon Seige** *See page 55*

Chas Boyd
Chas Boyd has been programming 3D graphics since the 1970's. In the 80's he led development teams on commercial 3D graphics products for CFD, astrodynamics, and geoscience. Since 1996, Chas has been program manager on Direct3D. By working closely with game developers to understand their needs and with 3D hardware vendors to understand their capabilities, he has helped to drive Direct3D from execute buffers to multitexture to hardware geometry to programmable shaders. Chas's primary interest is in growing the popularity of 3D graphics for entertainment applications such as movies and games. **Tutorial: (211) Microsoft DirectX Developer Day** *See page 33*

David Braben
David Braben and Frontier Developments Ltd. have had a reputation for producing unusual and innovative computer games since 1982 and are well-known for incorporating many technological and gameplay firsts and establishing new game styles that many have since copied. David is particularly well-known for co-writing the seminal game Elite, the first true 3D game. Following Elite, Zarch (and later Virus) also achieved many firsts: first to have real-time shadows and lighting, for example, which were used to depict a cheese-shaped craft flying over a solid 3D landscape. Many may also remember Frontier, the sequel to Elite, which was the best-selling game in Europe in 1993. Frontier came on a single floppy, and yet included a simulation of our entire galaxy, right down to the Earth and our solar system. It was perhaps also the first game to use Bézier curves for rendering. **Panel: Surviving Crunch Time** *See page 81*

Glenn Broadway
Glenn Broadway has worked in computer game development for over ten years. His career as a video game artist includes the role of lead artist & designer on the PC Format Shoot-Em-Up of the Year 1996, SWIV 3D. As one of the co-founders of IDMD, Glenn has been creating mobile content since the platform first appeared. In his role as designer he has worked on over 35 Java, WAP and SMS games. IOMO is well known for being one of the most prolific developers of quality wireless games in the world. **Roundtable: Could Retro Arcade Classics Kill Wireless Gaming?** *See page 55*

Mark Brockington
Mark Brockington has been working with BioWare for the last five years as a lead research scientist. Mark has a Ph.D. in computing science from the University of Alberta. Mark worked, with a team of five programmers, on the server-side AI and networking in Neverwinter Nights. Mark also worked on the multiplayer code for each of the Baldur's Gate games. **Lecture: Neverwinter Nights Client/Server Postmortem** *See page 95*

Vince Brody
Vince Brody is the cofounder and general manager of GameSpot, the web's most heavily trafficked gaming information site. Since GameSpot's acquisition by ZDNet in 1999, he has held senior management and product development positions at several leading Internet properties, including CNET Networks, ZDNet and mySimon. Vince returned to GameSpot full time in April, 2002. Before co founding GameSpot, he was the executive editor at IDG's Multimedia World magazine. Vince holds a degree in religious studies from Brown University. He lives in San Francisco with his wife and two children. **Panel: Proven Strategies for Self-Publishing on the Internet: Real-Life Stories of What Works and What Doesn't** *See page 48*

Frederick P. Brooks, Jr.
Frederick P. Brooks Jr. received the A.B. in physics from Duke University in 1953, and the Ph.D. in computer science from Harvard University in 1956, under Howard Aiken. Dr. Brooks joined IBM Corporation, working in Poughkeepsie and Yorktown, New York, from 1956 to 1965. He was an architect of the Stretch and Harvest computers and then was manager for the development of IBM's System/360 family of computers and DS/360 software. For this work, he received a National Medal of Technology. In 1957, Fred and Dura Sweeney invented a Stretch interrupt system that introduced most features of today's interrupt systems. Fred coined the term "computer architecture". His system/360 team first achieved strict compatibility, upward and downward, in a computer family. His early concern for word processing led to his selection of the 8-bit byte and the lowercase alphabet for the System/360, engineering of many new 8-bit input/output devices, and providing a character-string datatype in PL/I. In 1964, Fred founded the Department of Computer Science at the University of North Carolina at Chapel Hill and chaired it for 20 years. Currently, he is Kenan Professor of Computer Science. His principal research is in real-time, three dimensional, computer graphics, "virtual environments". His research has helped biochemists solve the structure of complex molecules and enabled architects to "walk through" buildings still being designed. He is pioneering the use of force display to supplement visual graphics. Dr. Brooks distilled the successes and failures of the development of Operating System/360 in *The Mythical Man-Month: Essays in Software Engineering* (1975, enlarged Anniversary Edition, 1995). He further examined software engineering in his well-known 1986 paper, "No Silver Bullet." His major work is the research monograph, *Computer Architecture: Concepts and Evolution*, with Professor Gerrit Blaauw. Fred served on the National Science Board and the Defense Science Board. He is a member of the National Academy of Engineering, the American Academy of Arts and Sciences, and the National Academy of Sciences. He has received the National Medal of Technology, 1999 ACM A.M. Turing Award, the Bower Award and Prize of the Franklin Institute, IEEE Computer Society's McDowell and Computer Pioneer Awards, the ACM Distinguished Service Award, the AFIPS Harry Goode Award, and an honorary doctorate from ETH-Zurich. **Keynote: Little to Big: What Changes?** *See page 84*

Dustin Browder
Dustin Browder works at Electronic Arts-Pacific as a senior game designer. Dustin led the design on Command and Conquer: Generals, Command and Conquer: Red Alert 2, Command and Conquer: Yuri's Revenge, Mechwarrior 2: Mercenaries and Heavy Gear. Dustin began his career working for TSR and White Wolf as a free-lance role-playing game author. **Panel: On All Levels** *See page 60*

Bill Brown
Bill Brown's innovative and powerful orchestral scores for Tom Clancy's Rainbow Six, Rogue Spear and Ghost Recon, the PC title The Sum of All Fears based on the Clancy book and film, Return to Castle Wolfenstein, Clive Barker's Unoying, the WindowsXP music and system sounds, and feature film titles such as Oliver Stone's film *Any Given Sunday* and *Ali*, directed by Michael Mann, have gained special recognition in the industry. Bill is director of music for the award winning music and sound design team at Soundelux Design Music Group, Hollywood, California, and has worked with top directors and producers including Steven Spielberg, Michael Crichton, Oliver Stone, Clive Barker, Tom Clancy, Gus Van Sant and more. **Panel: Does Melody Matter?** *See page 37* **Panel: Orchestral Panel** *See page 39*

Scott Brown
See www.gdconf.com for bio. **Panel: Show Me The Money! Revenue Models for Massively Multiplayer Online Games** *See page 48*

Steve Burke
Steve Burke has worked in the games industry as both an artist and art director for 12 years. He has contributed to a number of technical books as both an author and illustrator. Steve founded Burke Studios in 1997, a small 3D graphics house, to provide high-end 3D art and animation to game developers. He now works for Nvidia, helping developers to bring high-end, cinematic-quality art into their real-time 3D games. **Lecture: Hardware Shaders for the Artist** *See page 109*

Jack Buser
Jack Buser manages the Game Developer Support Group at Dolby Laboratories, and has headed up efforts to place Dolby technologies into console and PC games over the last two years. Prior to that, he spent two years in Dolby's Consumer Electronics group working with Dolby Digital, Dolby Virtual technologies, and Dolby Surround Pro Logic in consumer electronics hardware. Mr. Buser has a degree in electrical engineering, with a focus on music synthesis, from the University of Illinois. **Sponsored Session: Sex, Lies, and Surround Sound on Any Platform** *See page 40*

Melanie Cambron
Melanie Cambron is a recruiter for game industry leaders such as EA, THQ, Infogrames, and Sony. Melanie is featured in *Game Design: Secrets of the Sages* for her game industry knowledge, and she wrote the foreword to the successful book, *Game Programming with Direct X 7.0* and its follow-up. She speaks each semester at the University of Texas at Austin and the University of North Texas on the game development industry. Melanie is frequently interviewed by major media such as the *Dallas Morning News* for her industry expertise and serves as a consultant to the City of Austin's Interactive Industry Development Committee. **Sponsored Session: Hollywood or Bust: The Future of Team Development** *See page 78*

Scott Campbell
See www.gdconf.com for bio. **Panel: Crack Character Creation: The Mao Puffer Fish Panel** *See page 107*

Gary Carleton
See www.gdconf.com for bio. **Sponsored Session: Enhanced Tuning Assistance and Multithreading Support in the VTune Analyzer** *See page 91*

Chris Carollo
Chris Carollo began work at LookingGlass as part of the Thief team. While there, he also did work on the System Shock 2 Multiplayer and Thief 2. After LookingGlass's untimely demise, he migrated south to Ion Storm in Austin, where he's been working as lead programmer on Deus Ex 2: Invisible War. **Panel: Effective Evaluation of Middleware Panel** *See page 77*

Matt Case
Matt Case is the executive director of development for Blindlight, a service company that provides the videogame industry with inside access to the creative resources of Hollywood. As head of development, Matt oversees all of Blindlight's consulting engagements, as well as production assignments that utilize professionals from Hollywood's film and TV industries to elevate quality

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in the dramatic assets used in videogames. Recent projects that Matt has overseen include celebrity acquisition assignments for clients including Rockstar, Ubi Soft, and THQ; voice-over production projects for Sony and Microsoft and for Shiny's upcoming MATRIX title; and story development and scriptwriting projects for titles including SCEA's upcoming *Rise to Honor* title starring Jet Li. Prior to Blindlight, Matt worked on a new technology system to bring voice casting into the digital age, which he implemented through all the major Hollywood talent agencies. **Lecture: The Seven Secrets of Voicedver Prdduction** *See page 40*

Stevie Case
Stevie "KillCreek" Case currently serves as chief operating officer of Monkeystone Games, Inc., a game developer and publisher formed in the summer of 2001 with a focus on creating interactive entertainment for wireless and handheld devices. Under Stevie's guidance Monkeystone has released several titles for platforms ranging from the PC to mobile phones. Stevie received a high honor in November of 2000 when *PC Gamer Magazine* featured her as one of The Next Game Gods. **Panel: Product Success in Online Software Distribution** *See page 47*

Louis Castle
Louis Castle is the co-founder and general manager of Westwood Studios, a premier Electronic Arts' development studio. Westwood is best known for its COMMAND & CONQUER line of products but has also published many original and licensed products over its 16 year history such as BLADE RUNNER, THE LION KING, MONOPOLY, and DUNGEONS AND DRAGONS: EYE OF THE BEHOLDER. Louis is a long-time supporter and advisory board member for the Game Developers Conference and has spoken at GDC, E3 and CES trade shows for years on numerous topics in business, game design, art direction and technical R&D. "What drives me today is seeing other team members succeed and thrive as they continue to make great computer gaming products," he says **Panel: Surviving Crunch Time** *See page 81*

Steve Caterson
Steve Caterson has been with Midway/Atari Games for over 9 years. Steve began his video game career with Atari making arcade games. Titles he has worked on include AREA 51, GAUNTLET LEGENDS and GAUNTLET DARK LEGACY. Shortly after the completion of GAUNTLET LEGENDS for the arcade, he became involved in game development for home consoles. Steve has developed games for many systems, ranging from the N64 to the PS2, Xbox, and Gamecube. His most recent console game to hit the shelves was the platformer styled DR. MUTD. Before working in the video games industry, Steve spent a number of years in Hollywood dabbling in everything from prop fabrication, mechanical and make-up effects to miniatures and theme park design. Steve has a bachelor of science in industrial design from Art Center College of Design and an associates degree in film/video from Rochester Institute of Technology. **Panel: Art Directors Panel: Aesthetics and the Almighty Dollar** *See page 106*

Cem Cebenoyan
Cem Cebenoyan is a software engineer at Nvidia working on the technical developer relations team. He spends his days researching graphics techniques and helping game developers get the most out of graphics hardware. He has spoken at past GDCs on character animation, graphics performance, and non-photorealistic rendering. **Sponsored Session: Graphics Pipeline Perfdrmance** *See page 93*

Mark Cerny
Mark Cerny has been working in game design and technology for over 20 years, ranging from 1984's MARBLE MADNESS, which he created for Atari coin-op, to 2002's RATCHET AND CLANK. At Sega, Mark founded the Sega Technical Institute, where he also worked on SONIC THE HEDGEHOG 2 and KID CHAMELEON. As president of Universal Interactive Studios, Mark oversaw the creation of the CRASH BANDICOOT and SPYRO THE DRAGON series. In 1998 Mark established Cerny Games, a game design consultancy, which has had a major role in five released games and is presently involved in a number of upcoming character-action projects. **Panel: Old Schodl: Arcade Games in the Golden Age** *See page 60*

Alex J. Champandard
Alex Champandard is the AI Wisdom author contributing to the *Dark Art of Neural Networks* and is also the founder of the Artificial Intelligence Depot: a website dedicated to the AI developer community, where his regular articles and essays tackle the process of creating truly autonomous animats. Alex is currently doing his masters thesis developing a navigation system for virtual creatures. This challenging research takes a human-like approach focusing on learning. Alongside this project, he is leading the development of an open-source embodied agent architecture (FEAR), which provides a biologically inspired interface with any game environment, simplifying the development of genuine AI bots. **Lecture: Pathematics: Routing for Autdnomdus Agents** *See page 97*

Chris Charla
Chris Charla is a senior producer at Digital Eclipse Software, one of the leading independent development studios in the US. Before joining Digital Eclipse, he worked at Imagine Media as editor-in-chief of Next Generation, and as launch editor of IGN.com. Some of Digital Eclipse's recent games include: LILO & STITCH, SPYRO: SEASON OF FLAME, and SPIDER-MAN THE MOVIE, all for Gameboy Advance. **Lecture: Designing Original Games Based dn Licensed Properties** *See page 56*

Jim Charne
Jim Charne is a California, New York, and New Jersey lawyer who has provided legal representation for clients in all phases of interactive software entertainment since the mid-1980's. Jim entered the industry in 1983 as a producer for Activision and served as VP Legal & Business of console developer Absolute Entertainment. Jim was president of the Academy of Interactive Arts and Sciences (AIAS) from 1999 to early 2001 and is a voting member of AIAS, IGDA, and the Recording Academy (NARAS). Jim has been chair of the Legal & Business tutorial at GDC since 1998, and writes "Famous Last Words," a monthly column on games contracting issues for www.igda.org. **Roundtable: How to Get Paid dn Time for Milestones** *See page 46* **Roundtable: Giving Credit Where Credit is Due: Unraveling the Creoits Mess** *See page 45* **Tutorial: (207) Making and Managing the AAA Game Development Deal** *See page 32* **Panel: Preserving the Past—The Panel** *See page 70*

John Chasey
John Chasey is one of the founders of iomo ltd, award winning UK developers of entertainment content for mobile devices. Recent titles include BAFTA NOMINATED SCOOBY DOO, STUNTMAN, WENTWORTH GOLF , THIEF: CONSTANTINE'S SWORRO and THUNDERBIROS, for customers including Nokia, Eidos, iFone, Vizzavi, Aspiro, Digital Bridges, In-fusio and Empire. Technologies covered include SMS, MMS, WAP, J2ME and Symbian. John is a founding director of TIGA, www.tiga.org.uk, the Independent Game Developers' Association, and is the board representative on its Mobile SIG, "TIGA Mobile." John has a BSc Hons computer science from the University of Kent at Canterbury and recently completed the first year of a MBA with the Open University. He is married with two daughters. **Panel: How to Take Ydur Mobile Game to Market** *See page 46*

Seung Hoon Choi
Seung Hoon Choi is the general manager of the Korea Game Industry Alliance (KGIA). KGIA was established on September 26, 2002. It is a nonprofit, non-government organization composed of representatives of industry associations in the game field, especially those representing interactive games. **Panel: Korea, Where Multiplayer Gaming is King** *See page 46*

Doug Church
Doug Church has been in the game industry since 1990, working on a variety of PC titles (ULTIMA UNDERWORLD, SYSTEM SHOCK, THIEF, a bit of FLIGHT UNLIMITED thrown in) at what became LookingGlass Studios. Doug left in late 1999 and since has consulted on a variety of titles, including a tiny bit on Ion's DEUS Ex and recently working on HARMONIX'S FREQUENCY for the PS2. Dfficially a programmer, he actually ends up doing mostly game design and some project management, with varied impact. Doug has been coming to GDC for 10 years, and still finds it a pleasing blend of frustration and exhilaration. **Tutorial: (150)IGDA Academic Summit** *See page 28*

Sean Clark
Sean Clark received a B.S. from Sonoma State University in computer science in 1990. Sean joined LucasArts Entertainment Co.in June, 1990 as programmer/designer, and was made a project leader/director in 1992. **Lecture: How to Write Gddd "Bad Dialogue": Cramming Storytelling Into an Action Game** *See page 59*

Christopher Clay
Christopher Clay's first step into the industry was as a lab instructor for a character setup and design course at Full Sail in Drlando, Florida in October of 1999. After six months of teaching, Christopher moved to Westwood, Massachusetts where he began working at Turbine Games on ASHERON'S CALL 2. As the new technical artist he took over the creation of the 3D art pipeline for Turbine's G2 engine, and the integration of art assets through the pipeline into the game. Over the past two and a half years Christopher's helped to expand and refine the art pipeline to meet the needs of an evolving game design for the project. As the production cycle for AC2 has drawn to a close, Christopher's role has switched to that of the art director., overseeing the scheduling and technical managment of multiple projects using the G2 game engine and art pipeline. **Roundtable: Creating, Maintaining, and Improving 3D Art Production Pipelines** *See page 108*

Sam Coates
Sam Coates has helped put together Sony Computer Entertainment Europe's largest internal art team in order to build over 15 square miles of London streets and the population that live, drive, and die there. This has taken over three years.

Having just managed to finish THE GETAWAY, Sam is now resting on other people's laurels whilst waiting to see if crime really does pay. **Panel: Creating Character Mddels: A Review of Current Technidues** *See page 108*

Jon Cohen
See www.gdconf.com for bio. **Tutorial: (209) Level df Detail Management fdr 3D Games** *See page 33*

David Collier
David 'DC' Collier is a Tokyo based mobile game business development agent. David works with US and European publishers entering the Japanese market, and Japanese publishers going global. He recently led business strategy for PacketVideo Corporation, working with carrier customers worldwide including Docomo and T-Mobile. PV developed a syndication system for mobile games. Prior to this David founded Gamelet.com in San Francisco, a leading developer and aggregator of online games and entertainment applications. Customers included Sony, Electronic Arts, Sega, Disney, and Microsoft.

David is an award winning video game designer, having founded TripMedia.com in London. Titles included BURN:CYCLE which won numerous awards and was delivered in seven languages and three platforms. SEQUEL THE VIRTUAL NIGHTCLUB was the first CD-ROM game to feature interactive advertising from Levi jeans and others. **Lecture: Mobile Games: Japan and the Future** *See page 47*

Mia Consalvo
Mia Consalvo is an assistant professor of telecommunications at Dhio University. Mia researches and investigates popular culture forms in new media, including the Internet and digital games. She has published articles and book chapters on the video game industry and how game players experience games intertextually. She is also co-editor of the forthcoming book *Women and Everyday Uses of the Internet: Agency and Identity* published by Peter Lang. **Panel: Profiling the Female Gamer: A Look at Hdw She Buys and Plays** *See page 61*

Perry Cook
Perry Cook received a BA in music from the University of Missouri at Kansas City Conservatory of Music, a BSEE from UMKC engineering, and masters and PhDs in EE from Stanford University. Perry is currently associate professor of computer science with a joint appointment in music at Princeton University, researching physics-

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based sound synthesis and control, auditory display, and immersive sound environments. Prior, Perry served as senior research scientist of Media Vision, and as technical director for the Stanford Center for Computer Research in Music and Acoustics. He has consulted and worked in the areas of DSP, image compression, sound synthesis, and speech processing for NeXT Inc., Media Vision, Interval Research and other companies. He has published extensively on sound synthesis and perception, including two books: *Real Sound Synthesis for Interactive Applications*, pubished in 2002, and *Music Cognition and Computerized Sound*, published in 1999. **Lecture: Physics-Based Synthesis of Sound Effects** *See page 39*

Greg Costikyan
Greg Costikyan has designed 30 commercially-released board, roleplaying, computer, online, and wireless games in a career spanning 4 decades. He designed the first online game to attract more than 1million players; founded Unplugged Games, a wireless game company; and writes about games, game design, and the game industry for publications including the *NY Times*, *Wall Street Journal Interactive*, *Salon*, and *Game Developer*. Greg is currently a consultant to clients including Unplugged Inc., the Themis Group, and IBM. **Panel: Preserving the Past—The Panel** *See page 70*

Martin Coven
See www.gdconf.com for bio. **Lecture: Character Rigging and Animation** *See page 107*

Don Daglow
Don L. Daglow founded Stormfront Studios in 1988, earning Electronic Games magazine's recognition as one of the best-known and respected producers in the history of the field; Stormfront's recent titles include Lord of the Rings: The Two Towers PS2 / Xbox (EA) and Blood Wake Xbox (Microsoft). After serving as director of Intellivision game development for Mattel from 1981-83, Don held management positions at Electronic Arts (where he was employee #43) and Broderbund in the mid-80's before founding Stormfront. Don's education back ground is a BA in creative writing from Pomona College, as well as a M.Ed., Claremont Graduate School. **Lecture: Passion and Process: Managing Big Teams and Big Games** *See page 80*

Scott Dalton
Scott Dalton has served as a lead and senior level designer with Legend Entertainment, a development studio of Infogrames, since 1998. With heavy interest in game mechanics, environmental design, and special effects, Scott has a range of technical and artistic experience. He recently completed the blockbuster title Unreal 2 : The Awakening and he is currently in the initial stages of his next project which has not yet been announced. **Panel: State of the Art: Building 3D Environments and Models Review Panel** *See page 111* **Panel: Effects: State-of-the-Art Techniques** *See page 108*

Will Damon
See www.gdconf.com for bio. **Sponsored Session: Pentium 4 Processor Optimizations in DirectX 9.0** *See page 98*

Dane Davis
Dane A. Davis is an Academy Award winning sound designer. As a student making his own films at California Institute of the Arts, he created soundtracks for student films and eventually mixed most of the films being made at the school. Dane continued making soundtracks for experimental short films and worked as a sound editor on longer film projects. In 1986 he founded Danetracks in Hollywood in a closet of the company he worked for during the day as a sound transfer operator. He continues working primarily as sound designer and supervising sound editor on feature films such as *The Matrix*, *Treasure Planet* and *8 Mile*. He also creates sound design for TV ad campaigns for Nike and Pirelli. Currently, Dane is active in exploring the psycho-acoustic boundaries of interactive media as the technology approaches the depth and detail potential of motion pictures. He considers the application of the subjective emotional and dramatic principles of cinema sound design to the non-linear paths of game play to be the challenge of the current decade. **Keynote: Aural Subjectivity, A Personal Perspective** *See page 34*

Julian Davis
Julian Davis has been developing commercial software for over 20 years for a wide variety of platforms, including six years working on operating system kernels. Julian joined Kuju in 1995 to work in engine technology and was rapidly promoted to head up the engine team. Now technical director, Julian sits on the Microsoft Direct 3D steering committee and the Xbox Advisory Board and is a widely respected figure in the industry. Kuju Entertainment Limited produces a wide variety of simulation and action games on consoles and the PC. Some more recent examples are Lotus Challenge on the PS2, Microsoft Train Simulator on the PC and Team Alligator. **Lecture: Effective Evaluation of Middleware Panel** *See page 77*

Steven Davis
Steven Davis is CED of IT GlobalSecure Inc. and Quixotic Solutions Inc., security solutions firms with patents for verifiably honest network gaming and other security technologies. These firms have expanding business in telecommunications, insurance, financial, law enforcement, and global trade sectors. Steven has over 15 years of experience developing government and commercial information security solutions. He has led IT Security programs for DOD, FBI, FAA, US Department of Treasury, Bell Atlantic, CSC and SAIC. He has a BA in mathematics from the University of California at Berkeley and a MA in security policy studies from George Washington University. **Sponsored Session: The SecurePlay Platform - An Open Framework for Secure Network Gaming and Commerce** *See page 101*

Jason Della Rocca
Jason oversees the day-to-day running of the IGDA, giving particular focus to outreach efforts and member programs, working to build the sense of a unified game development community, and providing a common voice for the development industry. Jason and the IGDA deal with such diverse topics as the education of the next generation of game developers, dealing with the concern over violence in games, diminishing the impact of exploitative software patents, and working to attract more women and diverse cultures to game development. Jason also oversees the running of the Game Developers Choice Awards, an annual industry event which recognizes and rewards outstanding achievement within the game development community. Jason has been a member of the game development community for many years, and has spent time at Matrox Graphics, Quazal and Silicon Graphics. **Roundtable: IGDA Chapter Building Strategies** *See page 69* **Roundtable: Developer Focused Curriculum Feedback** *See page 67* **Panel: Freedom of Expression: Dealing with the Threat of Censorship** *See page 68* **Tutorial: (150) IGDA Academic Summit** *See page 28*

Mark DeLoura
Mark DeLoura is the founding editor of the *Game Programming Gems* series of books, which are big hardback volumes full of programming nuggets from professional game developers. The third book in this series is currently under construction. Mark is currently the manager of developer relations at SCEA. He has also been editor-in-chief of *Game Developer* magazine, the lead software engineer in the developer support group at Nintendo of America, an arcade game programmer, and a game industry consultant. Prior to joining the game industry, Mark spent quite a few years working with virtual reality systems and he's still a big VR fan. In the early 1990s he spent time at both of the top two virtual reality research institutions: the Human Interface Technology Lab at the University of Washington, and the computer science department at the University of North Carolina at Chapel Hill. Mark was also the co-moderator of the Usenet virtual reality newsgroups sci.virtual-worlds and sci.virtual-worlds.apps. **Group Gathering: *Game Programming Gems* Group Gathering** *See page 68*

Stuart Denman
Stuart Denman began programming games at the young age of 12. Ten years later, after obtaining a degree in computer engineering at the University of Washington, he co-founded Surreal Software and has spent the remaining days of his life as technical director. He was lead programmer on DRAKAN and now heads up Surreal's entire programming staff, while still managing to spend significant time programming and researching new technologies. Stuart is the chief architect of Surreal's RIOT Engine and Toolset, and continues to explore ways to improve the quality of games and the efficiency of game development. Stuart's game credits include: Drakan: Order of the Flame, Drakan: The Ancients' Games, AND Lord of the Rings: The Fellowship of the Ring. **Lecture: Highly Detailed Continuous Worlds: Streaming Game Resources From Slow Media** *See page 93*

Steve Derrick
Steve Derrick has been lead artist on several notable Gameboy Advance titles such as Crash Bandicoot: The Huge Adventure, Crash Bandicoot: Enranced!, X-Men: Wolverine's Revenge, Spider-Man Mysterious Menace. Steve has a degree in computer animation from the Art Institute of Phoenix and a BFA from in painting and drawing from the University of Utah. **Lecture: Advanced Techniques in Creating Tile-Based Graphics for Gameboy Advance** *See page 106*

Robert Di Benedetto
Robert Di Benedetto has been with Microsoft since 1996 working on several initiatives including kernel components for the Windows NT based family of operating systems. He has been an avid gamer for most of his life beginning with the Atari 2600 and Commodore PET machines. He joined the DirectX team in 2000 as the Program Manager for DirectPlay. His mission is to provide a robust, high performance networking library to assist game developers in building compelling online multiplayer game titles for Windows **Sponsored Session: How To Write A Network Layer** *See page 94*

Ken Dillinger
See www.gdconf.com for bio. **Sponsored Session: Game Development from Handhelds to PCs using Intel Performance Libraries** *See page 92*

Dr. Jonny Dobson
Dr. Jonny Dobson is a graduate of Edinburgh University, Scotland, where he received a BEng in computer science and electronics, and a PhD in VLSI design. In 1996 Jonny joined VIS entertainment as a software designer. Jonny was lead programmer on a number of projects for VIS including Earthworm Jim 3D, and Tom & Jerry: Fists of Furry (both N64), and more recently State of Emergency on both the PlayStation 2 and the Xbox. In February 2002 Jonny became head of software for VIS entertainment's Dunfermline Studio. **Lecture: Porting a PlayStation 2-Centric Game to the Xbox: A Case Study of State of Emergency** *See page 98*

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Michael Doggett
Michael Doggett works as an architect on graphics hardware at ATI Research. From 1996 to 1998 he worked as chief engineer at Conja Pty Ltd, a special effects, animation and design company. From 1998 to 2001 he was a member of the research staff of the Computer Graphics Laboratory (GRIS) at the computer science department of the University of Tuebingen as a PostDoc where he worked on custom hardware for volume rendering and displacement mapping. Michael has been involved in teaching courses at the University of New South Wales and the University of Tuebingen and was a speaker in a course at SIGGRAPH 2002. He is the paper co-chair for Graphics Hardware 2002 and has served on the program and review committee for serveral conferences. Michael has published numerous papers and is a member of IEEE Comuter Society and ACM. **Lecture: Displacement Mapping** *See page 90*

Sébastien Dominé
Sébastien Dominé is the manager of developer technology tools at Nvidia where he works on various projects dedicated to make 3D application developer's life easier. Prior to Nvidia, he worked on PC games at GameFX/THQ and authoring tools at Katrix and Nichimen Graphics. He received his Diplôme d'Ingénieur in computer science from EPITA, Paris, France. **Sponsored Session: Programming the GPU using Cg** *See page 99*

Chuck Doud
Chuck Doud has been composing and producing music professionally for over 15 years. He has composed music for film, tv, radio, recording artists, and interactive media. Chuck came on board at SCEA in 1997 and began creating interactive music scores. In his role as music director he spends his time working with composers both on a creative and technical level to create soundtracks for games. Chuck also spends equal amount of time working with the record industry to cultivate an ever expanding relationship between the two. **Lecture: Composing, Prooducing and Implementing an Interactive Music Soundtrack for Games** *See page 36*

Bret Dunham
Bret Dunham has been involved in game design on numerous projects at Vicarious Visions that has spanned multiple genres. Recent titles have included Terminus, a persistent world space-sim RPG, Polaris Snocross, a trick based racing game, Spider-Man 2 Enter: Electro, an action/adventure game, Whiteout!, a snowmobile racing title, and most recently Star Wars Jedi Knight II: Jedi Outcast, a first person shooter. Bret's been an avid first person shooter player since Wolfenstein and still cannot get enough of Counter Strike. **Lecture: PC to Consdle: Bringing Star Wars Jedi Knight II: Jedi Outcast to Xbox and Gamecube** *See page 61*

Elonka Dunin
Elonka Dunin is executive producer and general manager of online community at Simutronics Corporation, which is one of the longest-running developers of online multiplayer games, and in 1999 was ranked on the 'Inc. 500' list as one of the fastest-growing companies in the country. Elonka was born in Los Angeles, attended UCLA, and served six years in the USAF, working on aircraft such as the SR-71 and U-2. A world-traveler who speaks several languages, she has visited every continent, including Antarctica. Also an amateur cryptographer, Elonka has won various awards for cracking 'uncrackable' codes. After the events of September 11th, she organized a crisis center at Simutronics that tracked down and reported the status of all of the game community members who were in the affected areas. She also contacted the FBI about her cryptography experience, and has been invited to come and teach various agents about steganography to help with the war on terrorism. **Panel: When the Site Hits the Fan: Wrangling Community Fansites** *See page 49*

Alex Duran
Alex Duran is the object system programmer on DX2: Invisible War at ION Storm. Alex also worked as a programmer on DX. The Conspiracy for the PlayStation 2, and the Deus Ex multiplayer version. Previously, Alex worked as a programmer at LookingGlass Studios on Thief II: The Metal Age. Alex strongly supports object systems that encourage emergent behavior and designer control. **Lecture: Building An Object System: Features, Tradeoffs, and Pitfalls** *See page 89*

William Dwyer
After 10 years in architecture doing historical preservation, designing corporate interiors and single family homes, Bill Dwyer joined Stormfront in 1993 to work on Tony La Russa Baseball. Bill also worked on DS9 as lead artist and LEGO MyStyle (PC/MAC) and LotR (PS2/Xbox) as the producer. Recently Bill joined Pronto Games to again work with Randy Angle and team as project manager, helping to deliver two games for toys with embedded games keeping those titles on schedule and under budget. Bill graduated from Johns Hopkins University in 1979 with a BA in humanities. He graduated in 1982 from Virginia Polytechnic Institute with a master's degree in architecture. For the last two years Bill and Randy Angle have given the Effective Project Management talk at GDC. **Tutorial: (102) Effective Project Management** *See page 29*

Eric Dybsand
Eric Dybsand is wrapping up the design/development of the AI for a tactical combat simulator to be used by the US Army during training. He has consulted on an extensive list of computer games, including designing the strategic AI for the Master of Orion sequal MOO3; the AI for racing, baseball and wrestling games; the AI opponents for the RTS game Enemy Nations, the FPS games Rebel Moon Revolution and the War in Heaven; and a number of turn-based wargames. Eric has been involved with computer game AI since 1987, doing game design, programming and testing, and is a contributing author on AI to the *Game Programming Gems* series. **Roundtable: AI in Computer Games Roundtables** *See page 86*

Chris Early
As President and C.D.D. of GameSpy Industries, Chris Early was responsible for the revenue growth and operations of GameSpy Industries and the management of GameSpy's expert teams. Chris joined GameSpy through the acquisition of the Mplayer business unit from HearMe and is credited with successfully managing the merger of the Mplayer online games service with GameSpy Arcade and the smooth incorporation of the two businesses. As vice president and general manager of the Mplayer online games service at HearMe, Chris managed business operations of the Mplayer entertainment community and network, which included driving revenue, technology development and business development. Chris joined HearMe in 1996, and in his five years with the company, he held several management positions, including vice president of Mplayer.com and director of content acquisition for Mplayer.com. Chris holds B.A. degrees in economics and international management from Claremont Men's College. **Panel: Show Me The Money! Revenue Models for Massively Multiplayer Online Games** *See page 48*

Rik Ede
Rik Ede spent five years at Dolby as 5.1 evangelist. Currently a consultant to DTS, Rik is considered to be the world's leading authority on surround sound in games. Rik has been writing, performing and mixing music in 5.1 for over six years and composing music for games for over 13 years. Rik also held the position of audio development manager at Sony (Psygnosis) for five years. Rik's credits include Wipeout Fusion and GTA: Vice City where he is credited as audio technology consultant. Rik's company, Gamesound Ltd., boasts a full 6.1 24bit 96khz recording studio (not just a pc with plug ins!) and acts as consultant to the games, music, and film industries worldwide. Rik is currently working with DTS to roll out the PS2 DTSi SDK to enable realtime discrete digital surround sound on the PlayStation 2 and future platforms. **Panel: How to Mix Discrete Surround Sound for PlayStation 2** *See page 38* **Sponsored Session: Techniques for Implementing Interactive Surround Sound** *See page 40*

Jerry Edsall
Jerry Edsall has been coding Location Based Entertainment, PC, and console games for over seven years. Jerry has spent most of his career making large robots move, starting with Virtual World Entertainments Tesla Battletech, continuing on with DisneyQuest's Invasion, and finishing off with Microsoft's Mechwarrior4:Vengence. Currently, Jerry is working on an unannounced Xbox title for Microsoft's Fasa Studio. In his off time, Jerry can be found hurtling himself down mountains attached to various planks of wood and mechanical devices. **Lecture: Animation Blenoing: Achieving Inverse Kinematics and More** *See page 87*

Julian Eggebrecht
Julian Eggebrecht is co-founder of Factor 5, a game and technology developer located in Marin County, California. Factor 5 was founded in Germany in 1989 and moved to the U.S. in 1996. Factor 5 is a technology partner for Nintendo's Gamecube console and provider of the MusyX sound tools. Julian's work includes the Turrican line of games, Star Wars: Rogue Squaoron, Ballblazer Champions, Indiana Jones - Greatest Aoventures, Indiana Jones & the Infernal Machine, International Superstar Soccer Deluxe, Contra: The Alien Wars. Most recently Julian was director of Star Wars Rogue Squaoron II: Rogue Leaoer for the Nintendo Gamecube. Julian is Factor 5's president and lead director/producer and is currently working on two titles. **Panel: Surviving Crunch Time** *See page 81*

Thomas Engel
See www.gdconf.com for bio. **Lecture: Making Sound Designers Independent: Techniques to Integrate Audio into Games** *See page 94* **Panel: Interactive Mixing** *See page 39*

Wolfgang Engel
Wolfgang Engel is the author of the first and second edition of *Beginning Direct3D Game Programming* from Premier Press, the editor and co-author of *ShaderX - Vertex and Pixel Shader Tips and Tricks* and a co-author of *OS/2 in Team* for which he contributed the introductory chapters on OpenGL and DIVE. Wolfgang has written several articles on game programming for German journals as well as several online tutorials that have been published on www.gamedev.net and his own web-site, www.direct3d.net. During his career in the game industry, he developed two game development units that published six online games for the European TV show "Wetten das..?" **Sponsored Session: First Steps to Vertex and Pixel Shader Programming with DirectX** *See page 91*

Christer Ericson
Christer Ericson is a senior principal programmer and the tools and technology group lead at Sony Computer Entertainment America in Santa Monica, CA. Previously at Neversoft Entertainment, he was the lead programmer on the critically acclaimed PlayStation game Tony Hawk's Pro Skater. Christer received his masters degree in computer science from Umeå University, Sweden, where

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he also lectured for a number of years. Christer specializes in optimization and is currently filling his own empty cycles by working on a book on collision detection for games to be published by Morgan Kaufmann in 2002-2003. **Lecture: Memory Optimization** *See page 95*

Cass Everitt
Cass Everitt is an engineer in the OpenGL Applications Engineering group at Nvidia. Prior to joining Nvidia, he worked in the scientific visualization branch of computer graphics, focusing on oceanographic and meteorological model visualization. **Tutorial: (205) Advanced OpenGL Game Programming** *See page 32*

Noah Falstein
Noah Falstein is the president of The Inspiracy (www.theinspiracy.com), a consulting firm specializing in game design and production. With over 20 years designing and managing entertainment and educational software for companies such as Williams Electronics, LucasArts Entertainment, The 3DO Company, and Dreamworks Interactive, Noah has worked on everything from toys to CD-ROM games to edutainment to location-based entertainment. Noah has led brainstorming sessions for well-known game designers, writers, and even film directors such as George Lucas and Steven Spielberg. The Inspiracy does original design and design review for both established game companies and those looking to apply game design technique to education and corporate training. **Tutorial: (208) Art and Science of Brainstorming** *See page 33*

John Feil
John Feil is a level designer at LucasArts, currently working on the game Full Throttle 2. A member of the IGDA, John is involved in the IGDA's Educational Committee, trying to bridge a closer relationship between the game industry and the academic world. **Roundtable: Heroes in the 21st Century!** *See page 59*

Daniel Fontijne
Daniel Fontijne is currently is working as a scientific programmer at the University of Amsterdam. One of his goals is to create an efficient implementation of geometric algebra for use in computer graphics, computer vision and robotics. Daniel has experience with linked rigid body simulation, artificial evolution, virtual reality, and motion capture. He earned an MSc with distinction in artificial intelligence. **Lecture: Geometric Algebra: The Framework for Geometric Computations** *See page 93*

Tom Forsyth
Tom Forsyth has been obsessed by 3D graphics since seeing ELITE on his ZX Spectrum. Since then he has always tried to make hardware beg for mercy. Tom has written triangle-drawing routines on the Spectrum, Sinclair QL, Atari ST, Sega 32X, Saturn, Dreamcast, PC, GamePark32 and Xbox, and he's getting quite good at them now. Tom's coding past includes writing curved-surface stuff for Sega and graphics drivers for 3Dlabs. Currently he works in Guildford at Muckyfoot Productions, where past projects are Urban Chaos, Startopia and Blade II. **Lecture: Displacement Mapping** *See page 90*

Chris Foster
Chris Foster contributed to the Caesar and Loros of the Realm series of strategy games at Sierra/Impressions as co-designer and producer before joining the design team at Turbine. As co-lead designer for the "live team" dedicated to Asheron's Call, he helped develop the game's first events and established procedures for designing and implementing monthly game updates. Chris is now focused on developing new massively multiplayer experiences. **Lecture: Episodic Content: Here, Now & Next Month Too** *See page 57*

David Freeman
David Freeman's talk at last year's GDC was met with rave reviews, and this one should be no different. David is currently working as a designer/writer on the next Command and Conquer for Westwood Studios, as well as working either as a designer/writer or writer on games for Infogrames, Universal Interactive, two games for Activision, and others. He recently finished working as a designer/writer on Gladiator: The Crimson Reign for Midway Games, and contributed to the script for Enter the Matrix for Shiny Entertainment. He has worked on first-person shooters, action-adventure games, platformers, and RTS games. David is the author of *Creating Emotion in Video Games*, to be published this year by New Riders Publishing. He teaches "Beyond Structure" (www.beyondstructure.com), L.A. and N.Y.'s most popular screenwriting class. It has not only been taken by writers from many top films and television shows, but by game designers and executives from Microsoft, Sony, Infogrames, Universal Interactive, Blizzard Entertainment, Shiny Entertainment, Westwood Studios, Oddworld Inhabitants, Legend Entertainment, and many other game companies. As a writer and producer, David has had scripts and ideas bought or optioned by MGM, Paramount, Columbia Pictures, Castle Rock, and many other film and television companies. **Lecture: 34 Ways to Create Emotions in Games** *See page 64*

Laura Fryer
Laura Fryer is director of the Xbox Advanced Technology Group (ATG) and is responsible for making Xbox the ultimate platform for game developers. Laura joined the Xbox team in May of 2000 and immediately became responsible for much of the day-to-day management of ATG. During the Xbox project, she founded worldwide Xbox Developer Support, created the Xbox Advisory Board, and ran Xbox game developer events (aka Xfests) around the globe.

In 1995, Laura became one of the first members of Microsoft Games Studios (MGS). During her tenure, she was the leading producer in MGS shipping six games in five years. Her best-known titles are Crimson Skies, Fighter Ace, and Pinball Arcade.

As one of the founders of the MSN Gaming Zone, Laura is an expert on Internet and multiplayer gaming. Besides conceiving and producing the first Microsoft release of The Zone, she also produced Fighter Ace 1.0, Microsoft's first massively multiplayer game. **Tutorial: (109) Xbox Open for Unsigned Developers** *See page 30* **Roundtable: QA/Testing Best Practices** *See page 71*

Bill Fulton
Bill Fulton is a founder and the manager of the User-testing Group at the Microsoft Game Studios. The group uses psychological research methods to collect feedback that improves the fun and ease of use of games published by Microsoft. Bill has contributed to 25+ titles directly (including Age of Empires, Combat Flight Simulator, Asheron's Call and the Madness series), and overseen work on almost all other Microsoft titles since 1999. All told, the User-testing Group has tested 16,000+ gamers playing more than 100 different games (both Microsoft and competitors), on PC and all major console platforms.

Prior to working at Microsoft, Bill completed four years of postgraduate training in cognitive and quantitative psychology at the University of Washington, studying how people form judgments and make decisions, and how to meaningfully quantify theoretical ideas. For some publications from Bill and other members of the User-testing Group, see www.microsoft.com/playtest/publications.htm. **Lecture: Making Games More Fun: Methods for Playtesting Games** *See page 60*

Thomas Funkhouser
Thomas Funkhouser is an assistant professor in the department of computer science at Princeton University. His current research interests include immersive virtual environments, acoustics modeling, computer graphics and geometric modeling. He received a B.S. in biological sciences from Stanford University in 1983, a M.S. in computer science from UCLA in 1989, and a PhD in computer science from UC Berkeley in 1993. **Lecture: Geometric Modeling of Sound Propagation** *See page 38*

Darren Futa
Darren Futa has been designing and producing web sites for Maxis since 1998, where he helped create the popular official sites for SIMCITY 3000 and THE SIMS. Before joining the games industry, Darren worked as a writer/editor at places ranging from UCLA to Channel One News to movie ad agencies. In fact, if you walked down the aisles of your local video store, you could probably find a few straight-to-video titles bearing his tag lines, he just won't tell you which ones. Currently, Darren continues to work on the design and production of THE SIMS ONLINE web site. **Panel: When the Site Hits the Fan: Wrangling Community Fansites** *See page 49*

Robert Garriott
Robert Garriott and his brother Richard founded Origin Systems, Inc. in March of 1983 and by 1990 they turned Origin into the world's number one independent publisher of computer games in the U.S. In order to get a foothold in the PC game business, Electronic Arts acquired Origin in 1992. At Electronic Arts, Robert held several positions including VP of business development and executive VP of product development. Robert left EA in 1995 to pursue his personal investment and development interests. In 2000, Robert and Richard created Destination Games in Austin, Texas and one year later the company became part of NCsoft, a Korean company that's quickly become the worldwide leader in developing and publishing subscription-based online games. As CEO of NCsoft Austin, Robert oversees NCsoft's North American business including new product development and third-party products that will be published under the NCsoft brand. **Panel: Korea, Where Multiplayer Gaming is King** *See page 46*

Jeff Gatlin
Jeff Gatlin began his career in the interactive entertainment industry by writing music for Simutronics' Gemstone III and Apogee's Hocus Pocus. A graduate of the University of Texas at Arlington with a music degree in jazz studies, Jeff joined Simutronics as a remote contractor GameMaster for Gemstone III in 1994, and became a full-time developer in 1996. Over the last seven years, he has assumed a variety of roles: sound designer and editor, music composer, game designer for Hercules & Xena: Alliance of Heroes, systems designer developing tools to simplify online game development in all Simutronics games, and most recently web and database development to create online dynamic content in the form of game bestiaries, discussion forums and fan site databases. **Panel: When the Site Hits the Fan: Wrangling Community Fansites** *See page 49*

Ron Gilbert
See www.gdconf.com for bio. **Tutorial: (206) The Art and Science of Brainstorming** *See page 33*

Rich Goldman
Rich Goldman, creative director and founder of RipTide Music, is a music producer with broad experience as a musician, producer, studio operator, and sound designer for computer games, TV, commercials, theatrical trailers, network promotion and sonic branding. His credits include commercials for McDonalds, the movie trailers of *Solaris* and *BMW Films*, video games Mission

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Impossible and Legion/Legend of Excalibur and sonic branding for Infogrames, Intel and MSN. Rich has earned several Gold Records and numerous advertising awards for his work. He is a board member of G.A.N.G. (The Game Audio Network Guild), an industry organization dedicated to the advancement of interactive audio and is also a member of NARAS. He negotiates all agreements for RipTide Music. **Roundtable: Audio Business Issues** *See page 36*

Sheri Graner Ray
Sheri Graner Ray has over 10 years of experience writing, designing and producing computer games for such companies as Origin Systems and Her Interactive. Her interest in developing games that take the female player into consideration began during her days working on the ULTIMA series of computer games at Origin Systems, Inc. There she became known for her mantra, "But what if the player is female?" She has worked as a writer/designer, producer, Internet content manager, head of product development and CEO of her own development house. Currently, she is writing a book and doing freelance writing and game design work. Sheri lives with her husband Tim Ray in Austin, Texas with their seven dogs and two Persian cats. **Group Gathering: Women in Game Development Group Gathering** *See page 73* **Panel: Profiling the Female Gamer: A Look at How She Buys and Plays** *See page 61*

Robin Green
Robin Green has been an ex technical director, R&D programmer and C++ police at EAUK Studio and Bullfrog, but now he works at Sony Computer Entertainment R&D tackling mathematical problems. Robin moved to Silicon Valley two years ago and is slowly learning to stop talking about the weather. **Lecture: Spherical Harmonic Lighting: The Gritty Details** *See page 101* **Tutorial: (105) Faster Math Functions** *See page 29*

Simon Green
Simon Green is an engineer in the demo group at Nvidia Corporation, where he spends most of his time developing eye candy to show off the power of Nvidia's GPUs. After barely graduating with a degree in computer science from the University of Reading, England, Simon spent two years in the games industry working on a succession of doomed 3DD and PlayStation titles, before migrating to Silicon Valley, California. Simon's interests include image-based rendering, cellular automata, and vintage analogue synthesizers. **Tutorial: (205) Advanced OpenGL Game Programming** *See page 29* **Sponsored Session: Ogres & Fairies: Secrets of the Nvidia Demo Team** *See page 96*

Daniel Greenberg
Daniel Greenberg is the creative director for the Tolkien Games at Universal Interactive and Sierra. He is currently working on games based on *The Lord of the Rings* and *The Hobbit* across all platforms, including the upcoming massively-multiplayer game, Middle-Earth Online. **Roundtable: Videogame Violence: Rights and Responsibilities** *See page 72* **Panel: Freedom of Expression: Dealing with the Threat of Censorship** *See page 68* **Roundtable: Game Ratings** *See page 69*

Scott Greig
Scott Greig was BioWare's first full time employee and is currently the director of programming. One of the most satisfying aspects of his job is being able to tell his parents that all that time he spent as a youth playing D&D and hanging around in arcades turned out to be job training. Needless to say, he is an avid video game fan and enjoys playing almost all genres of games. When not working or playing games, he spends his time pretending to be an artist.

Despite it being the top recommendation of a computerized aptitude test given during high school, Scott never seriously considered the game industry as a viable career choice. Despite this, he wrote his first video game in 1982 on a C64 and continued to play around with various game graphics all through university. In January 1996, he was part of the small team that produced a technology demo for what would eventually be Baldur's Gate.

Scott's professional video game credits to date include the following: Miscellaneous art and programming tasks on Shattered Steel. He was a co-game designer and the lead programmer of Baldur's Gate and Neverwinter Nights. **Lecture: Neverwinter Nights Client/Server Postmortem** *See page 95*

Jaime Griesemer
Jaime Griesemer is the design lead for Halo 2 at Bungie Studios in Redmond, WA. Originally trained for a career in experimental physics, Jaime got his first taste of game development as an in-house tester on Bungie's Myth II. Quickly tiring of the arduous testing process, Jaime began to work on multiplayer maps under the auspices of 'testing the tools'. When he refused to surrender his key to the Bungie offices after Myth II shipped, they had no choice but to offer him a full-time position. Following Microsoft's purchase of Bungie, Jaime served as a level designer on Halo and then snatched the lead designer position for the sequel when nobody was watching. He now greatly enjoys doing "the coolest job in the universe" and waiting for karma to drop a meteor on him, or something. **Lecture: Halo: Development Evolved** *See page 59* **Panel: On All Levels** *See page 60*

Austin Grossman
Austin Grossman started in the industry over 10 years ago at LookingGlass Technologies as a writer for Ultima Underworld 2, and later did various writery-designery things on System Shock, Terra Nova, and Flight Unlimited. At Dreamworks he was lead designer for Trespasser and did story design for Clive Barker's Undying. He also did some of the writing in Deus Ex. He is currently working on a PhD in English literature at the University of California at Berkeley. **Group Gathering: Writers Group Gathering** *See page 73* **Tutorial: Game Design Workshop** *See page 28*

Dave Grossman
Dave Grossman is a writer and game designer of some mileage. At LucasArts Entertainment in the late 1980s and early 1990s he co-authored such classics as The Secret of Monkey Island 1 and 2 and Day of the Tentacle. Working independently since 1994, he has put his unique, humorous stamp on about a dozen more published titles, including many children's games: Moop and Dreadly, Freddi Fish 4, the entire Pajama Sam series, and others. His work has appeared in boxes of Cocoa Puffs. Dave has designed toys for Lego and Fisher-Price, published three children's books and one book of verse, and received several awards for making strange public access television. Dave currently divides his time between freelance writing and design and the maintenance of Phrenopolis, a publishing label he started last fall (which also hosts his hilarious *Poem of the Week*, an online column now in its eighth year). **Tutorial: (208) The Art and Science of Brainstorming** *See page 33*

Dr. Bob Gutmann
Dr. Bob Gutmann received a BS, MS, and Ph.D. from Iowa State University in 1970, 1972, and 1976 respectively. From 1972 to 1984 he worked for Boeing Military Airplane Company designing navigation systems. Bob worked for Bolt Beranek and Newman (BBN) on SIMNET and as a program manager on various image generator projects. Bob has been with Zipper Interactive since its inception. He has held faculty positions at the University of Massachusetts, the University of Washington, and Pacific Lutheran University. **Lecture: SOCOM: Bringing a Console Game Online** *See page 62*

Garner Halloran
Garner Halloran is a software engineer at Red Storm Entertainment. His main responsibility since joining Red Storm has been to work on the user interface for many of their titles. This has enabled him to provide a user interface library that is being used throughout the company for the PC, Xbox, and PlayStation 2. Garner's seven year career has netted seven credits including Tom Clancy's Rainbow Six, Shadow Watch, and Tom Clancy's Ghost Recon. **Roundtable: User Interface Design** *See page 64*

Hal Halpin
Hal Halpin is the founder and president of the Interactive Entertainment Merchants Association, the game industry's non-profit retail trade association. He manages and runs the IEMA's annual conference and show, the Executive Summit, which is the game industry's premiere senior-level event. Hal also founded *IE Magazine* (formerly *GameWeek*), which was the leading trade publication serving the sector, and *Game Daily*, the category's primary daily news outlet. He re-published the authoritative novel covering the business, *Game Over*, and is frequently called upon to represent the industry in mass-media outlets, at conventions and trade shows, and in representing the sector to federal and state governments. Leveraging the aforementioned assets, Hal is responsible for providing networking opportunities, advice, counsel, and representation to retail, wholesale, manufacturing, analysts, and government figures regularly. Hal holds a BA in business and psychology. **Panel: Freedom of Expression: Dealing with the Threat of Censorship** *See page 68*

Wolfgang Hamann
Wolfgang Hamann has had an extensive career in the entertainment industry. Wolfgang is currently a game team project manager and head of the audio department at Radical Entertainment, having worked on such games as Simpsons Road Rage, Dark Summit, Monsters Inc. and Dark Angel. His past experiences as an Emi published songwriter, intellectual property consultant, audio producer/engineer, personal manager and owner of Merlin Productions and Zauber Music Publishing have given him unique insights into the intricacies of the entertainment industry from all aspects including creative, technical, legal and business. He has also been a part time college instructor for over 20 years and currently teaches a Business Management for Games course in Vancouver, Canada. Wolfgang received his B.A. from the University of Windsor, Ontario and attended post graduate studies at the University of British Columbia. **Roundtable: Gooobye to Postmortems: Hello to Critical Stage Analysis** *See page 77*

Mark Harris
Mark Harris is a Ph.D. student at the University of North Carolina at Chapel Hill, where he is researching methods for real-time simulation and rendering of clouds and other phenomena. Mark presented a talk at GDC 2002 on the subject of cloud rendering for games. He has had stints in the games industry at Intel, iROCK Games, and Nvidia. **Lecture: Simulation and Animation with Haroware-Accelerated Proceoural Textures** *See page 101*

Daniel Hart
Daniel Hart is the senior director of Yahoo! Games and Entertainment and is responsible for the strategic direction of the business, including its entrance into the PC game rental market with the recent launch of Yahoo! Games on Demand, a for-pay games service that offers users the ability to rent and play PC games directly through a streamed service. Daniel has built a comprehensive team and led the unprecedented growth of Yahoo! Games to more than

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eight million unique users with more than four and a half billion minutes of game play each month. Daniel joined Yahoo! in 2001 to oversee Yahoo!'s Games business as well as contribute his expertise to the development of the company's entertainment properties overall.

Prior to joining Yahoo!, Daniel was the vice president of business development for new media at Viacom. While at Viacom, Daniel served as a lead executive in the company's corporate planning and development group, working to define and implement Internet strategy for the company and many of its branded media businesses. In addition, he worked on strategic planning and business development with Viacom's online groups at MTV Networks, Blockbuster, Paramount, Showtime and Simon and Schuster.

Daniel holds a BA and an MBA from the University of Michigan, Ann Arbor and a masters in education from Columbia University. **Panel: Proven Strategies for Self-Publishing on the Internet: Real-Life Stories of What Works and What Doesn't** *See page 48*

Evan Hart
See www.gdconf.com for bio. **Tutorial: (205) Advanced OpenGL Game Programming** *See page 32*

Ryoichi Hasegawa
Ryoichi Hasegawa began his career at Sega Enterprises in Japan in 1992, localizing games from both Japanese to English and English to Japanese. At Sega he worked on more than 35 titles, including Ecco the Dolphin and Power Rangers for Genesis and Game Gear, Night Trap for Sega CD, Virtua Racing Deluxe for the 32X, Nights for Saturn, and House of the Dead 2 and Daytona USA 2 for the arcade. In 1998, he joined Sony Computer Entertainment Inc, where as assistant producer he has contributed to the development of Crash: Warped, Crash Team Racing, Crash Bash, Spyro the Dragon 1 and 2, Jak and Daxter, Formula One 2001, and Sly Cooper and the Theivius Raccoonus. **Lecture: How to Make Your Game Successful in Japan** *See page 59*

John Hattan
John Hattan is the owner of the Code Zone and is an independent game developer. **Sponsored Session: Leveraging Online Resources to Make it as an Independent Game Developer** *See page 47*

Paul Hellier
Paul Hellier started out programming games in the 80's and since then has held technical and business development roles in a variety of publishers and developers. Currently he is the director of technology for Infogrames in Beverly, Massachusetts. **Sponsored Session: Surviving the Publisher Due Diligence Visit** *See page 48*

Stefan Henry-Biskup
Stefan Henry-Biskup has been making art for computer games for the last 11 years. In the last few years he has been concentrating on his favorite subject of Creatures and Characters. Always striving to marry the art and craft of this deep subject. As lecturer at GDC in the past he has spoken on character modeling a number of times. He is now working as an art director in charge of Character Model Production and general partner at Liquid Development. His passed game credits include Escape From Monster Manor, Slave Zero, Brute Force, and The Matrix:Reloaded. **Panel: Creating Character Models: A Review of Current Techniques** *See page 108*

J.C. Herz
J.C. Herz is a professor at New York University's interactive telecommunications program and the principal of Joystick Nation Inc., a research and design practice that applies the principles of game design to products, services, and learning systems. Drawing from an understanding of ecology, online social dynamics, complex systems and information theory, J.C.'s focus is human-human interaction design, and systems that leverage the intrinsic characteristics of networked communication. Clients include multinational corporations, high-tech start-ups, and military research organizations.

J.C. sits on the National Research Council's Committee on Creativity and Information Technology, and the Defense Advanced Research Project Agency's study group on patterns of emergent behavior in massively multiplayer persistent worlds. Prior to teaching at NYU, she lectured at Carnegie Mellon University, NASA's Jet Propulsion Lab, the University of California's Institute for Creative Technologies, the Annenberg Center for Communications, Yale. She is the author of two books, *Surfing on the Internet* (Little Brown, 1994), an ethnography of cyberspace before the web, and *Joystick Nation: How Videogames Ate Our Quarters, Won Our Hearts, and Rewired Our Minds* (Little, Brown 1997), a history of videogames which traces the cultural and technological evolution of the first medium that was born digital, and how it shaped the minds of a generation weaned on Atari. J.C. published 100 essays on the grammar and syntax of game design in the *New York Times* between 1998-2000 (archived online, www.nytimes.com/library/tech/reference/indexgametheory.html - free of charge, but registration required). She received her bachelor's degree in biology and environmental studies from Harvard. **Panel: Korea, Where Multiplayer Gaming is King** *See page 46*

Jeff Hilbert
Jeff Hilbert is the president of Digital Development Management. Jeff has over 10 years of interactive entertainment industry experience and is recognized as building one of the top agencies for this market. He has the unique distinction of representing both Interactive Entertainment Publishers and Development Studios balanced approach to the industry. Since forming his agency Jeff has personally secured and negotiated over $115,000,000 in content development projects and acquisitions. DDM continues to represent some of the top development studios and intellectual properties to the interactive entertainment industry while expanding the range of services offered to include management and production services. **Panel: A Review of Funding, Models for the Independent Developer and Their Implications** *See page 48*

Alistair Hirst
Alistair Hirst is a composer, sound designer and former audio programmer. After ten years at Electronic Arts where he led audio teams on games like Need for Speed III: Hot Pursuit, he left his position as senior audio director to form his own game audio company. Omni Interactive Audio provides a complete package of audio services for interactive media, including music in a variety of genres, sound effects, speech, and audio tools and integration. He is on the board of the Seattle Composers Alliance, and a Gold member of the Game Audio Network Guild. He has also composed for film, most recently the orchestral score of *Gambling Divinity*, as well as *Peter's Day in the Sun*, screened at the 2000 Seattle International Film Festival. Alistair is active on the Interactive Composition Workgroup of the IGDA. **Roundtable: The Art and Craft of Composing Interactive Music** *See page 36*

Nathaniel Hoffman
Naty Hoffman started his engineering career at Intel, where he was the lead architect for the Pentium with MMX chip and contributed to the MMX, SSE and SSE 2 instruction sets. In 1997 he did the somewhat whiplash-inducing switch to game programming at Westwood Studios, where he was the lead graphics programmer on the online space RPG Earth & Beyond. More recently, he has been doing graphics R&D on a new (unannounced) title. Naty has lectured at GDC 2001 and 2002, and has published in *Game Developer* magazine and the *Game Programming Gems* book series. **Lecture: Advanced Real-Time Illumination Techniques** *See page 86*

Todd Hollenshead
See www.gdconf.com for bio.**Panel: What It Takes To Run a Successful Game Studio** *See page 49*

Jussi Holopainen
Jussi Holopainen's main research interests are the use of mobile technologies in game development and design patterns of all types of games. His work has been presented at international conferences including SIGGRAPH and HUC (Handheld and Ubiquitous Computing). Jussi is also one of the organizers of Jyväskylä Arts Festival, a member of the programme committee for the Computer Games & Digital Cultures conference, and the treasurer of the Digital Games Research Association. **Lecture: Game Design Patterns** *See page 58*

Daniel Hornick
Daniel Hornick is an artist on Nvidia's demo team. **Sponsored Session: Ogres & Fairies: Secrets of the NVIDIA Demo Team** *See page 96*

Richard Huddy
Richard Huddy is the president and CEO of 'The Code Mafia', a new company that offers its graphics expertise to the games industry on a consultancy basis. Code Mafia's principal customer is ATI, the PC industry's leading graphics chip company. Richard has worked in the computer games industry for more than 14 years and for most of that time has specialized in high-performance 3D graphics. He worked with both RenderMorphics and Criterion Software developing their low-level APIs before moving on to work as a device driver writer specializing in Direct3D optimization. Richard's primary focus is now teaching game programmers how to get the best from modern high-performance architectures using Direct3D. Richard is a regular contributor at Microsoft's Meltdown conferences and teaches at the annual GDC and Creativity events. He lives in England and is proud of that fact. **Tutorial: (104) Advanced Visual Effects with Direct 3D** *See page 29*

Dan Huebner
See www.gdconf.com for bio. **Sponsored Session: Hollywood or Bust: The Future of Team Development** *See page 78*

Rob Huebner
Rob Huebner is a co-founder of Nihilistic Software, a small development team located in Marin County, California. Robert's previous work includes Jedi Knight: Dark Forces 2 from LucasArts, Descent from Parallax Software, and contributions to Starcraft by Blizzard Entertainment. Nihilistic's first title, Vampire: The Masquerade-Redemption was a top-10 seller when released in March, 2000. Robert is Nihilistic's director of technology, creating new engines and tools for Nihilistic's next project being developed for next-generation console systems. **Tutorial: (209) Level of Detail Management for 3D Games** *See page 33* **Tutorial: (150) IGDA Academic Summit** *See page 28*

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speaker bios

Robin Hunicke
Robin Hunicke is a PhD candidate in the computer science department at Northwestern University. A joint member of the Robotics and Interactive Entertainment groups, she studies plan recognition, player modeling, and dynamic difficulty adjustment for video games. **Tutorial: (1S0) IGDA Academic Summit** *See page 28* **Tutorial: (1S1) Game Design Workshop** *See page 28*

Dan Irish
Dan Irish has worked as the 3rd Party Producer at Mattel Interactive and Ubi Soft for the last few years, responsible for the brand development of the Myst product line including RealMyst, and Myst III: Exile. Dan was directly and fiscally responsibility for the overall production schedule, game development, live-action video shoot and orchestral recording. During this time, he worked directly with Jack Wall to produce the award-winning Myst III: Exile Soundtrack, providing the financing for Jack to hire some of the finest talent available. Currently, Dan Irish is executive producer at Relic Entertainment and responsible for Homeworld 2, the sequel to the 1999 game of the year, Homeworld. Dan has a tremendous passion for creating great game music, in addition to making great games. **Panel: Orchestral Panel** *See page 39*

Pete Isensee
Pete Isensee has been programming in the game industry for ten years. Pete's shipped titles ranging from adventure stories to casual online games, working on platforms ranging from PCs to Macs to Xbox. He's currently a lead engineer with the Xbox Advanced Technology Group. He has a degree in computer engineering and was a C++ template geek long before compilers knew what to make of functors and traits. **Lecture: Custom STL Memory Allocators** *See page 90*

Greg James
Greg James has been programming 3D graphics since 1986 when his family's Amiga 1000 arrived. As part of the technical developer relations team at Nvidia, he develops 3D applications and assists game developers throughout the industry. Prior to this, Greg worked in the game industry and in high-energy physics research. His works have been published in various computer graphics and physics publications, including the popular *Game Programming Gems* series. **Lecture: Simulation and Animation with Hardware-Accelerated Procedural Textures** *See page 101* **Tutorial: (1O4) Advanced Visual Effects Direct 3D** *See page 29*

Alex Jarett
Alex Jarett is a chairman emeritus of the IGDA and is the founder and chairman of the IGDA's Online Games Committee. Alex owns and manages two companies: The Technology Executives Club (www.technologyexecutivesclub.com), the Midwest's largest thought-leadership and business development association for technology and ebusiness executives; and Broadband Entertainment Group, Ltd. BEG is an entertainment development company. BEG's first project is BAP Games, LLC, a developer of fun, online games for the masses. Prior, Alex was VP and co-founder of Real Sports, LLC, where he successfully developed relationships with major publishers such as GT Interactive, ABC Sports Interactive/Disney Interactive, Ubisoft, Hasbro, Infogrames and Microsoft, and major licensors such as IMS and Games Workshop. Alex has 23 years of business development and marketing management experience in the software and new technologies markets. He can be reached at: ajarett@technologyexecutivesclub.com **Panel: Finoings of IGDA's 2002/2003 Online Games Whitepaper** *See page 68*

Eugene Jarvis
Eugene Jarvis began his career in video games in 1977 as a pinball programmer at Atari. His debut video game was the smash hit Defender, after which he formed his own studio, Vio Kidz, and created Stargate and the revolutionary Robotron. Jarvis introduced digitized live-action actors to the arcade world with NARC, and in the 1990's invented the adventure driving genre with Cruis'n USA, Cruis'n World, and Cruis'n Exotica. Jarvis recently left Midway Games to form a new design studio, Raw Thrills, where he is hard at work on its debut releases. **Panel: Old School: Arcade Games in the Goloen Age** *See page 60*

Dan Johnson
Dan Johnson is the lead character modeler for Insomniac Games. Dan began his career in computer graphics at the age of fifteen, but soon realized there wasn't much of a future in rendering his dog's name in chrome. So in 1993 he began work on modeling, animating, and texturing characters for a small animation house in the Midwest, and began to educate himself on the leading 3D software. In 1995 he packed it up and moved to L.A. where he worked on his first title Treasures of the Deep. In 1997 he signed on with Insomniac Games, and over the last five years has worked on such titles as Spyro the Dragon, Spyro: Ripto's Rage, Spyro: Year of the Dragon, and Ratchet and Clank where his primary responsibilities included modeling environments, building and rigging characters, facial setup for lip-syncing, and pioneering new techniques in Pop-Tart preparation. **Panel: Creating Character Models: A Review of Current Techniques** *See page 108*

Gerard Jones
As a creator of pop culture, Gerard has written for such comic-book icons as Spider-Man, Batman, and Justice League. He has helped adapt many Japanese comic franchises to the American market, including Dragon Ball and DiGiCharat, and is the only American to have written Pokémon stories. Gerard's own creations (eg, Ultraforce, Prime, Trouble with Girls, Haunted Man) have been developed into cartoons, comics, toys, webtoons, feature films in development, and a video game.

Gerard's latest book is *Killing Monsters: Why Children Need Fantasy, Super Heroes, and Make-Believe Violence* (Basic Books). He has written for many publications (eg, Harper's, New York Times) and often speaks on games and culture. Gerard created the Art & Story Workshops for young people, a source of much of his understanding of how kids use their culture. With other child advocates and media scholars he cofounded Media Power for Children, an organization devoted to better understanding and utilizing the power of entertainment. **Panel: Freeoom of Expression: Dealing with the Threat of Censorship** *See page 68* **Tutorial: (1S0) IGDA Academic Summit** *See page 28* **Lecture: The Social Significance of Games: Killing our Monsters** *See page 72*

Jean-Marc Jot
Jean-Marc Jot studied electrical engineering in France and received his doctorate from Ecole Nationale Superieure des Telecommunications, Paris, in 1992. He then joined the room acoustics team at IRCAM, Paris, where he developed the 'Spat' software. In 1998, he joined the Creative Advanced Technology Center in Scotts Valley, CA, to lead Creative's 3D audio R&D activities. He has published several papers and holds several patents on artificial reverberation and 3D audio. He is the principal author of Creative's EAX API and the IA-SIG 3D Level 2 rendering guideline (I3DL2), and has contributed to the environmental audio spatialization technology in the MPEG-4 standard. **Sponsored Session: EAX Aovanced HD: EAX 4.0** *See page 37*

Ken Kahn
Ken Kahn is the creator of ToonTalk, a game-like programming system for children. He is a visiting researcher at the Swedish Royal Institute of Technology. Ken's involvement with children and computer programming began in 1975 when he joined the Logo project at MIT as a graduate student in AI. Prior to returning to kids and programming in 1992, he did research in AI, programming languages, and distributed computing at various universities and at Xerox PARC. Ken has participated in several earlier Game Developer Conferences as both lecturer and roundtable host. **Roundtable: Chiloren's Software: Past, Present, and Future** *See page 54*

Kenji Kaido
See www.gdconf.com for bio. **Lecture: Game Design Methoos of ICO** *See page 58*

Ryan Kaufman
Ryan Kaufman got his BA in creative writing at UC Santa Cruz and kinda figured he'd work at Barnes & Noble for the rest of his life, until a friend got him into the QA Department at LucasArts in early 1995. From there, Ryan became a level designer and worked on several different types of games. He's now currently designer on the upcoming Full Throttle Two. **Lecture: How to Write Gooo "Bao Dialogue": Cramming Storytelling Into an Action Game** *See page 59*

Masaki Kawase
See www.gdconf.com for bio. **Lecture: Frame Buffer Postprocessing Effects in WRECKLESS: THE YAKUZA MISSIONS** *See page 92*

Jason Kay
Jason Kay is one of the founders of Society Capital Group, a private capital strategic consulting firm located in Los Angeles, CA. Most recently, Jason worked with a small team of consultants in shaping the strategic direction and mergers and acquisition strategy for the Columbia House Company, a direct marketer of entertainment products with over $1 billion in sales. Jason serves on the Board of Advisors to massively multiplayer middleware provider Butterfly.net and as technology adviser to Akin, Gump, Strauss, Hauer and Feld. Prior to founding Society Capital Group, Jason worked as a producer and business development executive for Activision, Inc. (NASDAQ: ATVI) a publicly held publisher of entertainment software for the PC and next-generation console systems. Jason holds a juris doctor degree from the University of Southern California Law Center, and a B.A. with high honors in English from Tulane University. **Lecture: Completion Bonoing for Game Development Projects** *See page 44*

Greg Kearney
Greg Kearney is technical director for EA's Maxis Studio and is currently working on The Sims Online. Greg received a BSc degree in engineering science from Iowa State University in 1985. He then worked cross-discipline, engineering applications for DoD/Navy Engineering Computer Applications. For the past eight years, he has worked in the game industry for EA/Maxis, working titles on the PC and game consoles. **Lecture: Scaling the Software Development Process: Lessons Learneo From The Sims Online** *See page 100*

Geoff Keighley
See www.gdconf.com for bio. **Panel: What It Takes To Run a Successful Game Stuoio** *See page 49*

Heather Kelley
Heather Kelley is a designer on Thief 3 at Ion Storm Austin, and is co-chair of the IGDA's Women in Game Development committee. Prior to Ion Storm, she was a producer-designer at Human Code, producing the award-winning Redbeard's Pirate Quest among other titles. **Roundtable: Women in Game Development: Where to Next?** *See page 73*

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speaker bios

Alison Kelly
Alison Kelly had already achieved business success at age 16 with the launch of her production and booking agency. This began her career as an A&R agent for London Records. A highly respected agent, Alison helped launch the careers of many platinum artists. An entrepreneur at heart, Alison left London Records in 1999 to start a production company that infused music and technology, and with the help from sponsor Daily Radar, the Sapphire Party became the North American debut of the Sony PlayStation 2. With marketing savvy, Alison landed features in prominent media outlets such as *URB*, *Mixer Magazine*, the *New York Times*, *Entertainment Weekly*, *Dateline*, and MTV. Alison co-founded a student IGDA chapter that has over sixty-five members and has netted corporate sponsorship, a change in curriculum, and attention from industry veterans. A graduate from the University of Utah with a B.S. in speech communication and management, Alison currently is awaiting publication and is pursuing an MBA. **Group Gathering: Stuoents Group Gathering** *See page 72*

Isaac Kerlow
Lecture: The 12 Principles of Traoitional Character Animation Applieo to 3D Computer Animation *See page 112*

Scott Kim
Scott Kim has been a full-time independent puzzle designer since 1990. His work has ranged from the design of complete games, starting with 600 puzzles for Heaven & Earth in 1992, to designing puzzles for adventure games (such as the Daedalus Encounter and Obsidian), to designing web games (such as the 2-player board game MetaSquares for AOL). He is now focused on developing daily puzzles for the web, mobile phones, and other online media. He studied mathematics, graphic design, music and computer science at Stanford University. Besides designing electronic games, he also writes several monthly puzzle columns for magazines, including a page in the popular science magazine Discover. **Lecture: The Puzzlemaker's Survival Kit: Principles, Case Studies and Design Process** *See page 61*

TJ Kim
Tack Jin Kim is the CEO of the Seoul, Korea based company NCsoft, which he founded in March of 1997. NCsoft is the publisher of the world's largest online game: Lineage: The Blood Pledge. Lineage boasts more subscribers than Ultima Online, Everquest, and Asheron's Call combined, with more than three-million active accounts in Korea alone. His online experience runs deep, as he has been in the Internet business for over 12 years. Prior to NCsoft he was blazing trails all over Korea, founding Hanme Soft in 1989, serving as the development team head for Korea's first Internet Online Service: Aminet (currently Shinbiro) in 1995-96. In addition to his duties with NCsoft he also finds time to be the regional director for Microsoft. Tack Jin's amazing success has been widely recognized; he was among the *Korea Economic Daily*'s 100 Venture Figures in January of 2000, and was selected as "Man of the Year" by the Computer Reporters Association in 1989. **Keynote: Applying tne Lessons Learneo from Korea ano Lineage to Tooay ano Tomorrow's Online Games** *See page 42*

Gary King
Gary King is a programmer working in Nvidia's demo team. **Sponsored Session: Ogres & Fairies: Secrets of the Nvioia Demo Team** *See page 96*

Neil Kirby
Neil Kirby is a member of Technical Staff at Bell Laboratories, the R&D arm of Lucent Technologies. Neil currently develops .NET solutions. His previous assignments included building speech recognititon software and teaching at the university level. Neil holds a masters degree in computer science from Ohio State University. In his spare time he designs multi-player, tactical combat computer games. Neil especially enjoys writing programs for computer opponents that play well without cheating. He lives with his spouse and son in central Ohio. **Roundtable: AI in Computer Games Rounotables** *See page 86*

Jeff Kliment
Jeff Kliment is an industry veteran with more than 20 years of experience in audio production. He has been with LucasArts for the past six years, starting as a lead sound designer, managing the sound and music department since 2000. Prior to joining LucasArts, Jeff spent 15 years as an engineer at Russian Hill Recording in San Francisco. During that time, he worked on a wide variety of projects, including post-production for feature films, sound design, voice, and music production for television and radio, and numerous albums and demos, among many others. Jeff graduated from San Francisco State University with a BA in broadcast communication arts. **Lecture: What Prooucers Snouio Know About Auoio** *See page 82*

Gopi K. Kolli
See www.gdconf.com for bio. **Sponsored Session: Optimizing Games For Power Ano Performance On Intel Xscale** *See page 97* **Sponsored Session: Game oevelopment from Hanoneios to PCs using Intel Performance Libraries** *See page 92*

Matt Komsthoeft
Matt Komsthoeft originally joined ArtX in 1999, which merged into ATI in 2000. He worked on verification of design and hardware for the Nintendo Gamecube graphics chip, and supported Nintendo with API verification. He went on to do verification and performance tuning for the ATI Radeon 9700 and derivative products. Now he is part of the Applied Engineering group, which seeks innovative ways to use and improve current and future graphics hardware. **Sponsored Session: Maya/Max to DX/GL: Translating Native Materials for Real-Time Applications** *See page 95*

Raph Koster
Raph Koster works at the Austin office of Sony Online Entertainment, and is the creative director for Star Wars Galaxies: An Empire Divided, the massively multiplayer game set in the Star Wars universe. Previously, he was the creative lead for Ultima Online and lead designer on Ultima Online: The Second Age. Raph writes and speaks frequently on issues of online world design, and maintains a webpage that includes the canonical history of online worlds and the well-known Laws of Online World Design at http://www.legendmud.org/raph/gaming/. **Lecture: Small Worlos: Competitive ano Cooperative Structures in Online Worlos** *See page 62* **Lecture: How to Manage a Large Scale Online Gaming Community** *See page 78* **Tutorial: Running Massively Multiplayer Games** *See page 30*

Bernd Kreimeier
Bernd Kreimeier is a writer, physicist, and coder, currently employed as a senior programmer for a game development studio in California. He has pursued the topic of game design patterns since 1997, and is currently working on a related book to be published by Wordware in 2003. His credits include an Xbox launch title. Bernd lectured at GDC in 2001 and moderated a GDC Roundtable on Game Design Patterns in 2002, and has been published in *Game Developer* Magazine and on Gamasutra. He has the equivalent of a masters degree in experimental physics from the University of Dortmund in Germany, and served as a research and teaching staff member at the Universities of Duesseldorf and Bonn. **Lecture: Game Design Patterns** *See page 58* **Roundtable: Game Design Methoos** *See page 68*

Tareh Kryger
Tareh Kryger is the lead artist at Escape Factory. Tareh has spent six years in the games industry and has worked as an environmental artist on a variety of console games including racing and snowboarding titles. **Panel: State of the Art: Builoing 3D Environments ano Mooels Review Panel** *See page 111*

Mike Kulas
Mike Kulas has been working in the game industry since 1981. Throughout the 80's he worked for Sublogic and BAO on numerous versions of Flight Simulator and related products. He worked briefly for LookingGlass Technologies before cofounding Parallax Software with Matt Toschlog in 1993. In 1996 Mike founded Volition as a spinoff of Parallax Software. Mike is married with three children. About a year ago he awoke to the realization he was no longer a programmer. He hopes to pick up programming after his retirement in about thirty years. **Tutorial: (207) Making ano Managing tne AAA Game Development Deal** *See page 32*

Andre LaMothe
Andre' LaMothe is the founder of the value game company Xtreme Games LLC and the Xtreme Games Developers conference (XGDC). He has also been a leading game development author for over a decade, his books being the starting point for countless developers around the world. Currently, he is the series editor for the Premier Press *Game Development* series and is working on his new start up, Nurve Networks LLC. He brings over 25 years of development experience as well as real-world trench warfare to the table. **Sponsored Session: Tne Trials ano Tribulations of Running a Value Game Company** *See page 49*

Jeff Lander
Jeff Lander is founder of Darwin 3D, a company geared toward a higher adaptation of real-time 3D graphics. Jeff has worked as a programmer for over 10 years in the video game, television, and film arenas where he has developed many real-time graphic applications. Darwin 3D's many game and entertainment clients include Luxoflux, Exakt Entertainment, MGM Animation, QuantumWorks Corporation, and Rhythm and Hues Studios. He has also written extensively for *Game Developer* magazine and spoken at many industry trade shows and conferences. **Lecture: Beyono Bouncing Boxes: The Physics of Things Tnat Beno ano Break** *See page 88* **Sponsored Session: Hollywooo or Bust: The Future of Team Development** *See page 78*

Francois Dominic Laramée
Francois Dominic Laramée, an 11-year veteran of the industry and a freelancer since 1998, has designed, produced, programmed and/or written over 20 games on half a dozen platforms. Francois has edited and co-written two books, *Game Design Perspectives*, released in 2002, and *Secrets of the Game Business*, scheduled to be launched at GDC 2003. He has also published over 40 articles for and about game developers in a variety of online and print markets, and he moonlights as a comedy writer. **Roundtable: Tne Freelancer's Rounotable, Opus III** *See page 45*

Kristoffer Larson
Kristoffer Larson has been gallivanting through the professional audio industry for more than a decade. From almost-famous musician to tweaky engineer, he has recently focused on postproduction and game audio. Kristoffer is currently roosting at Dolby Laboratories as lead technical consultant for its Game Developer Relations team, providing sage creative and technical advice to those looking to incorporate multichannel interactive audio content in their titles. In his voluminous spare time, Kristoffer also runs his own sound design and music company, Tension Studios. **Sponsored Session: Master Class Tecnniques for Surrouno Souno in Games** *See page 39*

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TUESDAY, MARCH 4

9:15-10:15am
World Tour of Mobile Games and Interactive Entertainment
David "DC" Collier, Gamelet.com, Matthew Bellows, *Wireless Gaming Review*

11-11:30am
Opening Keynote Address
Takeshi Natsuno, Executive VP, NTT DoCoMo i-mode

11:30am-12:30pm
Regional Case Study: China
Developing Mobile Games in the World's Largest Market
Norbert Chang, Enorbus

2-3pm
The Truth Behind Mobile Game Publishing
Matthew Bellows, Wireless Gaming Review, Juan Montes, Motorola, Gin Hyeon, Com2Us, Mitch Lasky, JAMDAT

3:15-4pm
Who Needs A Publisher? Who Needs an Operator?
Kevin Bradshaw, Machines That Go Ping

4-6:30pm
Mobile Operator Spotlight Presentations: Day One
Chip Novick, Sprint PCS (USA), Alan Welsman, Orange (UK), Darcy McNeill, Telus Mobility (Canada), Jerry Rocha, Cingular Wireless (USA)

WEDNESDAY, MARCH 5

9-10am
Keynote Address: Mobile Multimedia and Games
Ilkka Raiskinen, Senior Vice President, Media & Entertainment, Nokia

10:30-11:30am
Multiplayer Games and Mobile Communities
Dan Scherlis, Etherplay

11-11:30am
Regional Case Study: Finland
Cross Media Marketing of Mobile Games: Integration with TV, Web and Other Digital Media
Antti Seppanen, Intervisio

11:30am-12:30pm
Where in the World is LBS? Designing Games Using Geo-Location
Moderator: Robert Tercek, Machines That Go Ping; John Bunyan, AT&T Wireless, Sven Hålling, It's Alive

2-3pm
Game Design for the Mobile Medium
David "DC" Collier, Gamelet.com, Glenn Broadway, IOMO, Zachary Norman, JAMDAT, Donald Wisniewski, Cybiko

3:15-3:45pm
Regional Case Study: USA
Development in a Fragmented Landscape
Dale Crowley, Nuvo Studios

4-5pm
Beyond Downloadable Games: How New Technologies Will Drive New Forms of Interaction
Dan Scherlis, Etherplay, Paul Neurath, Floodgate Entertainment, Thomas Reardon, Openwave Systems, Chris Wright, Digital Bridges

5-6:30pm
Mobile Operator Spotlight Presentations: Day Two
Mica Imamura, J-Phone (Japan), Paul Palmieri, Verizon Wireless (USA), Tim Raby, 02 (UK), Michael Gallelli, T-Mobile (USA), Mike McSherry, Boost Mobile (USA)

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speaker bios

Brenda Laurel
Dr. Brenda Laurel is a designer, writer and researcher. She chairs the graduate Media Design Program at Art Center College of Design. Since 1976, she has worked for outfits like Atari, Activision, Apple and Interval. She founded Purple Moon, edited *The Art of Human-Computer Interface Design* (1990) and wrote *Computers as Theatre* (1991) and *Utopian Entrepreneur* (2001). Brenda serves on the Advisory Boards of Cheskin, the Communication Research Institute of Australia, the M.I.T. Comparative Media Studies program, the Berkeley Institute of Design, and the Center for Digital Storytelling. **Tutorial: (150) IGDA Academic Summit** *See page 28*

Alan Lawrance
Alan Lawrance graduated from the University of Toronto with a degree in computer engineering. Alan began his professional career at Nortel as a software engineer. Alan joined Volition in October of 1996 as a programmer on Freespace. He functioned as the lead designer on the top-selling, critically acclaimed Red Faction and served as lead programmer on the highly-anticipated sequel, Red Faction II. **Lecture: Red Faction: Building a Successful PS2 Franchise** *See page 81*

An Le
See www.gdconf.com for bio. **Sponsored Session: Optimize your games for the newest Intel(R) Pentium(R) 4 processor with Hyper Threading technology with the Intel Software Prooucts** *See page 97*

Peter Leahy
Peter Leahy is currently the general manager of Totally Games, handling all aspects of studio management from Business Development to HR, Finance to Project Management, and Business Strategy to Dog Walking. Peter joined Totally Games in 1998 after working for a decade in information technology and logistics for The Stanley Works, WinBook Laptop Computers, and CompuServe. Peter attended the University of Dayton and studied political science and government and later attended UCLA's Anderson School of Business. Peter completed a year of national service in the AmeriCorps Houses the Homeless program finding homes for and helping keep HIV+ formerly homeless adults and families in affordable housing. He speaks regularly on the topic of adoption, California's special needs children and the need to reform the foster care, child protective services and adoption laws and bureaucracies. Peter lives with his partner Doug and their two sons Tupac (6) and Trevon (1) in a cramped but gadget laden bungalow in Albany, California **Lecture: Effective Evaluation of Miooleware** *See page 77*

Marc LeBlanc
See www.gdconf.com for bio **Tutorial: (151) Game Tuning Workshop** *See page 28*

Glyph Lefkowitz
Glyph Lefkowitz is the lead developer of the Twisted project and a high-profile member of the open-source python community. Glyph spoke at the International Python Conference in 2002 and is involved in the continuing evolution of python as a language. **Roundtable: Python in the Gaming Inoustry** *See page 99*

Andrew Leker
Andrew Leker has been in the game industry since 1983, when he created and wrote the SkyRealms of Jorune role-playing game and series of books. Since then, he's developed his company, Mind Control Software, into a shop that specializes in innovative design. His entry into the 1st Independent Games Festival, Resurrection, was awarded Best Game Design and has received accolades for its originality and ease of play. Andrew continued Resurrection design at Visual Concepts as a Dreamcast title called Doga Booga. Andrew is a previous GDC speaker on the topic of game design, and has been a faculty member for the Game Tuning Workshop. **Lecture: 20/20 Design Vision** *See page 64*

Tom Leonard
See www.gdconf.com for bio. **Lecture: Building AI Sensory Systems** *See page 88*
Roundtable: Agile Development Rounotable *See page 86*

David Levy
David Levy is currently the lead artist/concept artist on Turok Evolution at Acclaim Studios, Austin. Previously, he was a freelance concept artist on Malice, Xbox game, for Argonaut software, and illustrator and 3D artist for various companies (Bits studios, argonaut, acclaim France). David also worked as the lead artist and game designer on XLR8 (futuristic bike racing game), London UK Game released on arcade, February 1999 in association with Thomson. He is also an occasional demo-maker on the French PC demo scene as a 3D/2D artist. He worked as a concept artist/illustrator at Cryo in Paris, France on various projects **Panel: Crack Character Creation: The Mad Puffer Fish Panel** *See page 107*

Bill Licea-Kane
Bill Licea-Kane is at ATI Research in the Advanced Technology Group. Bill is chair of the GL2 workgroup of the OpenGL ARB, which is finishing the shading language and related extension specifications. Previously, Bill worked at 3Dlabs, Compaq, and Digital, where he began working with computer graphics in the early 1980s. Bill recently taught at the OpenGL 2.0 course at SIGGRAPH 2002. **Tutorial: (205) Aovanceo OpenGL Game Programming** *See page 32*

Ming C. Lin
Ming C. Lin received her B.S., M.S., Ph.D. degrees in electrical engineering and computer science in 1988, 1991, 1993 respectively from the University of California, Berkeley. She is currently an associate professor in the Computer Science Department at the University of North Carolina (UNC), Chapel Hill. Prior to joining UNC, she was an assistant professor in the Computer Science Department at both Naval Postgraduate School and North Carolina A&T State University, and a Program Manager at the U.S. Army Research Office. She received the NSF Young Faculty Career Award in 1995, Honda Research Initiation Award in 1997, UNC/IBM Junior Faculty Development Award in 1999, and UNC Hettleman Award for Scholarly Achievements in 2002.

Her research interests include real-time 3-D graphics for virtual environments, applied computational geometry, physically-based modeling, robotics and distributed interactive simulation. Ming has served as a program committee member for many leading conferences on virtual reality, computer graphics, and computational geometry, as well as a member of Steering Committee for ACM SIGGRAPH/Eurographics Symposium on Computer Animation. She is the Program Co-Chair of ACM SIGGRAPH/ Eurographics Symposium on Computer Animation 2003, the Co-Chair of the Workshop on Intelligent Human Augmentation and Virtual Environments 2002, the general chair of the First ACM Workshop on Applied Computational Geometry and the co-Chair of 1999 ACM Symposium on Solid Modeling and Applications. She is also a guest editor of the *International Journal on Computational Geometry and Applications*, the co-editor of *Applied Computation Geometry*, and the category editor of *ACM Computing Reviews in Computer Graphics* and serves on the program committees of many professional conferences. She is the project leader of several public domain collision detection systems: I-Collide, RAPID, V-Collide, PDP, SWIFT, SWIFT++, PIVOT and DEEP. **Lecture: Fast Proximity Queries for Large Game Environments** *See page 91*

Noel Llopis
Noel Llopis started writing games as a hobby on an Amstrad CPC in 1985. He obtained his undergraduate degree in computer engineering from the University of Massachusetts Amherst, and his master's in computer science from the University of North Carolina at Chapel Hill. As a software engineer for Day 1 Studios, he has spent the last few years working on the technology behind the Xbox game MechAssault. He is now busy researching and implementing the technology for their next game. Noel is a member of the Gamasutra editorial advisory board, has written several articles on programming techniques in *Games Programming Gems 2*, and is currently writing a book on C++ programming for games. **Roundtable: By the Books: Solio Software Engineering for Games** *See page 89*

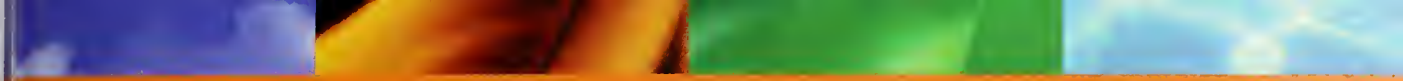
Ken Lobb
See www.gdconf.com for bio. **Panel: Communicating With the Mothership: Interfacing Between American Subsioiaries ano Their Japanese Parents** *See page 77*

Ed Logg
Ed Logg has been designing and programming games for 25 years. As creator of Asteroids, Centipede, Millipede, and Gauntlet, he helped bring the Golden Age of the Arcade to life. After continuing to make coin-op hits for Atari such as Xybots, Steel Talons, and Space Lords, Ed successfully made the transition to consumer games in 1995, converting and enhancing arcade games such as N64 Wayne Gretzky Hockey, N64 San Francisco Rush, and Dreamcast Rush 2049. Currently, as a contractor to Atari Games, Ed is contributing to design and programming on the upcoming original game Dr. Muto on the PS2, Gamecube, and Xbox **Panel: Olo School: Arcaoe Games in the Goloen Age** *See page 60*

Starr Long
Starr Long has been in the business of making PC games for over ten years. Alongside Richard Garriott, he was the original producer for the commercially successful Ultima Online. To date Ultima Online is the most successful Ultima title ever and one of the top revenue earners of all time for Electronic Arts. Starr was also the producer for Ultima Online 2.

Starr's success is defined by his first hand experiences in the trenches of game development. Starr worked his way up through the ranks of Origin Systems, Inc. starting as a temp employee in Duality Assurance, moving into lead positions for Bioforge, Ultima VIII, and many other titles. During his years at Origin Starr received awards like "Most Valuable Player," "Manager of the Year," and "Firefighter of the Year."

Starr is currently working with Richard Garriott on an online game code named Tabula Rasa for the Korean online game giant NCsoft, creators of the world's largest online game: Lineage **Lecture: Online Prooucт Development Management: Methods ano Maoness** *See page 80*



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speaker bios

Jeremy Longley
Jeremy Longley is one of the founding members of Lost Toys. Formed in 1999 by Corpes, Longley and Thomas, all three ex-Bullfrog colleagues, the company has already completed and published its first game, MDHD on PlayStation, PC and Dreamcast, a record most startups can only envy. Jeremy and Lost Toys are currently at work on their second game, details of which are expected to be announced shortly. **Lecture: Prooduction Issues for Small Teams in a Big Worlo** *See page 81*

Tim Longo
Tim Longo works for LucasArts Entertainment as a game designer on an unannounced Star Wars game and has also worked in that capacity on Star Wars Jedi Starfighter for the PS2 in 2002. Previous to Jedi Starfighter he worked as the lead level designer on Star Wars Starfighter and as a level designer on Indiana Jones and the Infernal Machine and Jedi Knight: Mysteries of the Sith. Tim started at LucasArts Entertainment seven years ago in the QA Department and has a degree in theatre directing. **Panel: On All Levels** *See page 60*

Henry Lowood
Henry Lowood is curator for History of Science & Technology Collections at Stanford University and a historian of technology. Henry has led Stanford's Silicon Valley Archives since its inception. He is also co-principal investigator of "How They Got Game: The History and Culture of Interactive Simulations and Videogames," a project funded by the Stanford Humanities Laboratory. His Stanford course, "The History of Computer Game Design: Business, Culture, Technology," is one of the first devoted to the history of this medium. He recently organized "Bits of Culture," a Stanford workshop on the preservation and study of interactive media. **Panel: Preserving the Past: The Panel** *See page 70*

Linda Lubken
See www.gdconf.com for bio. **Panel: Art Directors Panel: Aesthetics and the Almighty Dollar** *See page 106*

David Luebke
Dr. David Luebke (luebke@cs.virginia.edu) is an assistant professor in the department of computer science at the University of Virginia. His principal research interest is the problem of rendering very complex scenes at interactive rates. His research focuses on software techniques such as polygonal simplification and occlusion culling to reduce the complexity of such scenes to manageable levels. David's dissertation research, summarized in a SIGGRAPH '97 paper, introduced a dynamic, view-dependent approach to polygonal simplification for interactive rendering of extremely complex CAD models. He earned his Ph.D. at the University of North Carolina, and his bachelors degree at the Colorado College. **Tutorial: (209) Level of Detail Management for 3D Games** *See page 33*

Seth Luisi
See www.gdconf.com for bio. **Lecture: SOCOM: Bringing a Console Game Online** *See page 62*

Cyrus Lum
Cyrus Lum has been an artist in the computer game industry for over 10 years. He got his start at Strategic Simulations Inc. creating computer artwork for games based on the Advanced Dungeons and Dragons license. After 4 years at SSI, Cyrus moved on to Crystal Dynamics, Inc.; founded Crystal's art department and served as the art director. His work can be seen in such game products as Crash 'n Burn, Total Eclipse, and The Horde. Two years later, Cyrus packed up and left California for Texas and Iguana Entertainment, Inc. There, he founded the Advanced Technology Group which handles Acclaim Studio's high-end 3D rendering and animation for games. Before Cyrus left Acclaim, he served as the vice president of Digital Productions for Acclaim Studios where he coordinated and provided visionary direction to the advanced computer graphic art efforts of Acclaim Studios, Austin; Salt Lake Teeside (UK), London; and the Acclaim Studios Cinematic and Motion Capture Group. In March of 2000, Cyrus cofounded Inevitable Entertainment, a video game development company dedicated to creating innovative product for the next generation game consoles. Cyrus serves as Inevitable's art director. **Panel: Art Directors Panel: Aesthetics and the Almighty Dollar** *See page 106*

Jennifer MacLean
Jennifer MacLean's responsibilities as director, subscriber applications at Comcast Online Communications include business development for the country's largest high-speed Internet provider, focusing on customer value, and services such as interactive entertainment. Jennifer has had a long and varied career in game development with extensive online content development experience. After beginning her career at Microprose Software, she joined AOL in 1996 as a product manager in the Games Channel. During her tenure at AOL, she held numerous positions in the AOL brand programming division, specializing in interactive entertainment.

Jennifer is a frequent speaker at interactive entertainment industry events, and has earned a BA in international relations from the Johns Hopkins University and an MBA with a concentration in international business from the Columbia Business School. Jennifer resides in Valley Forge, Pennsylvania, with her husband. **Panel: Finoings of IGDA's 2002/2003 Online Games Whitepaper** *See page 68*

Dean Macri
See www.gdconf.com for bio. **Sponsored Session: Multi-threaoing your game engine for Hyper-Threaoing Technology** *See page 95*

Mark Mangini
Mark Mangini, a three time Oscar nominee, started at Hanna Barbara as their head sound designer working on such shows as the *Flinstones*, *Jetsons*, and *Scooby-Doo*. He then went on to work with Richard Anderson at Paramount on the much anticipated *Star Trek: The Motion Picture*. With his critically acclaimed *Gremlins*, he went on to receive an Oscar nomination for his work in *Aladdin*, *Star Trek IV the Voyage Home*, and *The Fifth Element*. With such versatility, no wonder he is one of the most sought after sound designers in Hollywood. **Lecture: Why is a Fart Funny? Creative and Dynamic Use of Sounos** *See page 41*

Charles Martin
Charles Martin contributed to numerous titles while employed at Crystal Dynamics and has been assistant professor of computer science at the University of Chicago. He received his Ph.D. in computer science from Yale University. Charles has authored and presented numerous papers at leading AI conferences including AAAI and IJCAI. **Lecture: Representational AI Planning Techniques** *See page 100*

Michael Mateas
Michael Mateas' work explores the intersection between art and artificial intelligence, forging a new art practice and research discipline called Expressive AI. He is currently at Carnegie Mellon, where he is an adjunct faculty member in the Entertainment Technology Center, a research fellow in the art department's Studio for Creative Inquiry and a Ph.D. student in computer science. Michael's AI-based artwork includes Terminal Time, a mass audience, interactive, story generation machine which constructs ideologically-biased documentary histories in response to audience feedback. Michael has presented papers and exhibited artwork internationally including SIGGRAPH, the New York Digital Salon, AAAI, the Carnegie Museum, the Warhol Museum, and Sonic Circuits (the Walker Museum entry). Michael received his BS in engineering physics from the University of the Pacific and his MS in computer science (emphasis in human-computer interaction) from Portland State University. **Lecture: Towaros Builoing a Fully-Realizeo Interactive Drama** *See page 63*

Frans Mayra
Frans Mayra, PhD, is a professor at the hypermedia laboratory at the University of Tampere, Finland. He has studied the relationship of culture and technology from the early nineties, particularly advocating academic study of games. Frans has specialised in the conflicting and heterogeneous elements in culture and published widely on topics that range from role-playing games to science fiction, fantasy and demonic tradition in cultural history. He is currently heading or otherwise actively engaged with several research and publication projects. Frans also coordinates the international Digital Games Research Association initiative, DiGRA. Selected publications: *Koneihminen*, *Demonic Texts and Textual Demons*, *Johdatus digitaaliseen*, *Computer Games and Digital Cultures Conference Proceedings*. **Tutorial: (150) IGDA Acaoemic Summit** *See page 28* **Group Gathering: Acaoemics Group Gathering** *See page 66*

Dave McCoy
See www.gdconf.com for bio. **Tutorial: (109) Xbox Open for Unsigneo Developers** *See page 30*

Mason McCuskey
Mason McCuskey is a programmer at 3DO and the owner of Spin Studios and is an independent game developer. **Sponsored Session: Leveraging Online Resources to Make it as an Inoepenoent Game Developer** *See page 47*

Chuck McFadden
Chuck McFadden is one of two senior QA leads at LucasArts Entertainment. Chuck has worked in the QA department for nearly four years and has an intimate understanding of the QA process. Chuck has worked on more LucasArts Entertainment games than he can count, including most recently Rogue Leader, Jedi Outcast, and Gladius; and each game has presented unique challenges to the QA process. **Roundtable: Managing the QA Process** *See page 79*

American McGee
American currently resides in Los Angeles and is creative director/founder of Carbon6 Entertainment. His current game projects include American McGee's Oz as well as several other unannounced titles. In his spare time he works as a music video/TV commercial director with Squeak Pictures. **Sponsored Session: Hollywooo or Bust: The Future of Team Development** *See page 78*

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INDEPENDENT GAMES FESTIVAL

10 Competition finalist games and 10 Student Showcase games will be on display March 6-8 in the IGF Pavilion on the GDC Expo floor.

The IGF Awards Ceremony will take place during
The 3rd Annual Game Developers Choice Awards
Thursday, March 6 · 6:30 pm · Civic Auditorium
The ceremony will be immediately followed by a reception.

About the IGF

The Gama Network established the Independent Games Festival in 1998 to encourage independent game development and to recognize the most innovative games.

There are two sections in the event: the IGF Competition and the IGF Student Showcase. The IGF Student Showcase is a non-competitive event, open only to full-time high school and college students. The IGF Competition is open to all independent developers and awards $20,000 in cash prizes to games in 6 different categories:

- Innovation In Visual Arts
- Innovation In Audio
- Innovation In Game Design
- Technical Excellence
- Audience Award
- Seumas McNally Award For Independent Game of the Year

Josh and Dan Goldstein, members of Shizmoo, accepting the Audience Award for KUNG FU CHESS at the 2002 IGF.

The 2003 IGF Competition finalists:

BaseGolf
Developed by Alitius
www.alitius.com

Furcadia
Developed by Dragon's Eye Productions
www.furcadia.com

Mr. Bigshot
Developed by Mr. Bigshot, Inc.
www.mrbigshot.com

Pontifex 2
Developed by Chronic Logic
www.pontifex2.com

Reiner Knizia's Samurai
Klear Games, LLC
www.klear.com

Strange Adventures in Infinite Space
Digital Eel
www.digital-eel.com

Teenage Lawnmower
Robinson Technologies
www.rtsoft.com

Terraformers
Developed by Pong Interactive HB
www.terraformers.com

Wild Earth
Super X Studios
www.superxstudios.com

Word Ninja
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speaker bios

Mitzi McGilvray
Mitzi McGilvray is game industry veteran who has spent the last fifteen years in the interactive entertainment business. She has managed both internal and external projects for console, wireless, Internet and PC platforms. Mitzi has worked with such premiere game publishers as Electronics Arts, Midway, Activision, Maxis, and Time Warner Interactive. Just a few of her numerous production credits include Michelle Kwan Figure Skating, NHL Hockey, March Madness, NCAA Football and Ted Nugent's Wild Hunting Adventure.

In 2001, Mitzi chose to become a game production consultant. This afforded her the opportunity to work on a more diverse range of titles and to provide a service she felt was needed in the game industry. To better position herself as a consultant, Mitzi formed a limited liability corporation and invited several of her peers join her in this new, virtual consulting environment.

With meeting locations ranging from airports to restaurants to local Starbucks, the team utilizes a range of technologies such as AIM, cell phones(with unlimited long distance), Wifi (for remote meetings) and broadband internet connections to stay in tune and in touch with the various projects they work on together. **Roundtable: When Starbucks is Your Office: How to Consult in the Game Industry** *See page 50*

Skip McIlvaine
See www.gdconf.com for bio. **Sponsored Session: Best Practices For DirectX 9 Audio Programming** *See page 88*

Bruce McMillan
Bruce McMillan is executive vice president, Worldwide Studios, Electronic Arts. Internationally acclaimed game franchises Bruce has developed, produced or managed include Harry Potter, James Bond, Madden Football, Medal of Honor, EA Sports F1 Racing Series and the world's all-time best selling sports franchise, FIFA Soccer. In 1998, Bruce led the design and development of EA's record selling Soccer products. That year, Bruce moved from Vancouver to London to grow EA's UK Studio. He also led the release of EA's Bullfrog Studios Populous III, Dungeon Keeper II, and Theme Park World that year. In 2000, EA won the rights to develop a series of games based on J.K. Rowling's *Harry Potter* series. Bruce based that project at EA's UK studio in Chertsey, Surrey and worked closely with Ms. Rowling and partners at Warner Brothers. When the first game, Harry Potter and the Philosopher's Stone, launched it quickly became the largest and most successful launch in the 20-year history of Electronic Arts. **Keynote: Maintaining Creative Focus and Building Blockbusters** *See page 74*

Erik Medina
See www.gdconf.com for bio. **Panel: A Review of Current and Future Animation Issues** *See page 106*

Michael Medlock
Michael Medlock is a lead in the User-testing Group at Microsoft Game Studios. The group uses psychological research methods to collect feedback that improves the fun and ease of use of games published by Microsoft. Michael has contributed to 25+ titles personally including Age of Empires II, Project Gotham Racing, Dungeon Seige, AND Flight Simulator 2000. Since 1998, the group has tested 16,000+ gamers, playing more than 100 different games (Microsoft and competitors), on PC and all major console platforms (Xbox, PS1 & PS2, Gamecube & N64, and Dreamcast). Prior to working at Microsoft, Michael received his M.A. in experimental psychology at the University of the Pacific, specializing in research on schedules of reinforcement, behavioral models of self control and animal behavior. **Lecture: Making Games More Fun: Methods for Playtesting Games** *See page 60*

Mark Meier
Mark Meier began his work as a game developer at the age of five. Bold-faced, he rode his '79 plastic Big Wheel straight into on coming traffic, where he quickly learned about physics-based environments, emergent solutions and risk-reward ratios. A few band-aids and some art school later, he parlayed his cornucopia of knowledge into a position at Crystal Dynamics. There he offered the world of Nosgoth his skills, working to design levels and create environments for Legacy of Kain: Soul Reaver and Soul Reaver II. Mark and Raziel parted ways in 2001, Raziel to continue on as a tortured, searching soul; Mark to continue on as a helpful instructor at the Art Institute of Phoenix. He teaches everything from game modeling to level design, all of which you can check out for yourself at the website he runs for game art and design at www.bobolo.net. **Roundtable: Developers as Teachers: Needs and Potentials** *See page 67*

Larry Mellon
Larry Mellon is a senior engineer for Electronic Arts (Maxis Studio), leading an automated testing and tools team for The Sims Online. He received his BSc degree from the University of Calgary, then joined other UofC alums in fielding the first commercial, massively parallel distributed simulation system, Jade Simulation's Sim++. Larry has worked in the field of large-scale distributed systems for over fifteen years, spanning commercial software development and applied research into synchronization and scaling techniques for massively multi-player military training simulations. As a lead architect in DARPA's Advanced Distributed Simulation, Synthetic Theatre of War, and Advanced Simulation Technology Thrust programs, Larry was a key contributor to the DoD's High Level Architecture, leading into the design of the HLA's Run-Time Infrastructure 2.0 (now IEEE 1516). **Lecture: Automated Testing of Massively Multiplayer Games: Lessons Learned from The Sims Online** *See page 87* **Lecture: Scaling the Software Development Process: Lessons Learned From The Sims Online** *See page 100*

Marc Mencher
Marc Mencher is a specialist in game industry careers and has helped thousands of job seekers land jobs with the hottest gaming companies. Before joining www.GameRecruiter.com he worked for game companies such as Spectrum Holobyte, Microprose and 3DO. Marc served as president of the International Game Developers Network, then as an advising board member the following year. Marc has spoken and held roundtables at several Game Developers Conferences, and is a regular speaker at International Game Developers Association (IGDA) events around the country. In addition to representing the game industry's hottest talent, Marc also volunteers his time as a career coach for graduates from Full Sail Real World Education, www.fullsail.com, helping them land their first game industry jobs. His articles have been featured in GIGnews.com, Gamasutra, and *GameWEEK*. Currently, he is working with the IGDA, www.IGDA.com, on chapter development and Games-Florida, www.gamesflorida.com, a non-profit organization formed with the intent of nurturing and expanding the interactive multi-media industry in the state of Florida. He is also technical advisor and executive producer for the recently released PC adventure game, Watchmaker. He is working on the release of the PC adventure game Tony Tough and the Night of the Roasted Months and an action shooter, Tsunami 2265, all published by Got Game Entertainment, www.GotGameEntertainment.com. **Group Gathering: Newbie Programmers Group Gathering** *See page 70* **Group Gathering: Newbie Artists Group Gathering** *See page 69* **Group Gathering: Newbie Designers Group Gathering** *See page 70*

Steve Meretzky
Steve Meretzky has been designing games in a variety of genres since 1982 for Infocom, Activision, Legend Entertainment, and his own development company, Boffo Games. Steve is currently creative content director at WorldWinner.com, where players can play games of skill in cash tournaments. Steve is a former member of the Board of the Directors of the IGDA, helps run the IGDA's Boston chapter (known as "Post Mortem"), and is one of the organizers of the annual Game Designers Workshop. **Panel: Casual Games Panel** *See page 55* **Panel: Preserving the Past: The Panel** *See page 70* **Roundtable: Preserving the Past: The Roundtable** *See page 70*

Clarinda Merripen
Clarinda Rose Merripen began her game playing career as a teenager at Phillips Academy in Andover, Massachusetts opening a certain mailbox and hiding from grues. Since then she has published a book of photography and poetry and protested against the MAN in Washington, D.C. and, for several years, worked with severely emotionally disturbed kids before returning to school for her. Somewhere in there she created three day long, fantasy live role playing events for 125 people, married, and had two great kids. Her last five years have been spent at Cyberlore Studios organizing, motivating, and playing with this great company as human resource manager. **Roundtable: Blueprint for the Next Step: Startup to Stability** *See page 44* **Panel: Profiling the Female Gamer: A Look at How She Buys and Plays** *See page 61* **Roundtable: Human Resources Best Practices** *See page 69*

Oliver Miao
Oliver Miao is the CEO of Centerscore, a leading edge wireless games developer. Centerscore has developed over twenty wireless games titles and was among the first companies to launch interactive, color games on the Verizon network. Before moving into management at Centerscore, Oliver took an active role in programming games for several mobile and internet platforms, including J2ME and Palm OS. Prior to Centerscore, Oliver was in management at Marimba, an enterprise Java company. **Panel: How to Take Your Mobile Game to Market** *See page 46* **Lecture: Developing Wireless Games: From Idea to the Marketplace** *See page 44*

David Michael
David Michael is the owner and lead developer of Samu Games and is an independent game developer. **Sponsored Session: Leveraging Online Resources to Make it as an Inoepenoent Game Developer** *See page 47*

Matt Mihaly
Matt Mihaly is the founding partner of Achaea LLC. Founded in 1996 in San Francisco, it develops, publishes, and maintains popular text MUDs including its flagship Achaea, Dreams of Divine Lands and Aetolia, The Midnight Age. As Achaea is a small company, he has his hands in everything, from design to marketing to distribution. Achaea LLC's games employ a fairly unique, and profitable, business model whereby playing time is free, but players are presented with the opportunity to greatly speed their progress in certain 'ladders of achievement' via retail transactions with Achaea LLC.

Sometimes Matt wonders why the heck he's in games. His degree is in political science from Cornell University, he worked briefly for his Congressman in D.C., and worked as a stockbroker after college. None of this suggests, "Dude, make games." Luckily for Matt, he's prone to ignoring those inner voices that plague him with their bite-sized chunks of digestible wisdom. After long and intense

STRUCTURE IN THE INDUSTRY WILL KEEP DEVELOPERS FOCUSED ON THE CREATIVE PROCESS

The most important issue facing game developers today is the lack of structure in the industry—from job specialization to tools, standards, education and even criticism and analysis. In other creative industries, like television, there's a structure that helps to keep the focus on the creative process, not the bottle-washing. This helps to keep costs down and quality high. Game development is evolving at a rate that makes this hard — but this is a goal that can make a big difference to the happiness of both our customers and us!

Since almost every product is a one-off, a lot of time is spent establishing systems and process. Because of this, job descriptions and responsibilities are different at nearly every company and sometimes even on different teams at the same company. This makes it hard to do things like bring in specialized talent for tasks that don't require a full time employee—a category that is starting to include things that were once core elements, like rendering, physics or even AI. We spend an increasing amount of effort doing things that are not making our games better.

With efforts like the AI Interface Standards Committee, the Academic Summit, and the Business Committee, **the IGDA is uniquely positioned to bring the industry together** to work on the problem of empowering developers to do more, do it better and have fun in the process.

Someday, I hope to see games made primarily by core teams of only a few people, who are enabled by tools, standards, and specialized talent, to focus almost entirely on the content of their game. They can bring in specialists when and where they're needed to create awesome games more predictably and for less money. I believe this will allow us all to take bigger creative and technical risks with our games.

SEAMUS BLACKLEY

SEAMUS BLACKLEY
VP DEVELOPMENT
CAPITAL ENTERTAINMENT GROUP

Get involved in your community—join the IGDA.

Go to your local chapter meetings and start helping to find ways to make everyone's lives easier. Pay attention to what's going on in game development by reading the rags, and see if there are ways to make your production process more efficient.

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speaker bios

periods of addiction to other MUDs induced a sense of impending, stunning poverty, Matt had an epiphany: He would whip up a quick game and bring in the big bucks. You know, 6 months of development and whammo, the-powers-that-be bestow success.

Matt's chosen to guide Achaea through non-traditional channels, and has shown that the Internet can allow a game developer to self-publish over the Internet at a reasonable cost. **Panel: Proven Strategies for Self-Publishing on the Internet: Real-Life Stories of What Works and What Doesn't** *See page 48*

Ian Milham
See www.gdconf.com for bio. **Panel: State of the Art: Building 3D Environments and Models Review Panel** *See page 111*

Tom Miller
Tom Miller is the development lead for Managed DirectX. Previously at Microsoft, he has worked on DirectX For Visual Basic, as well as the core Visual Basic team. He spends his spare time perusing the newsgroups. Tom's long term goal is to make gaming even easier on the PC. **Sponsored Session: Managed DirectX: .NET support for DirectX** *See page 94*

Jason Mitchell
Jason is the team lead of the 3D Application Research Group at ATI Research. Jason lives in Seattle and works on the Microsoft campus with the Direct3D architects. Jason and his team have worked with Microsoft to define key Direct3D features, including N-Patches and the 1.4 pixel shader model. In addition to this, the 3D Application Research Group forms a key part of ATI's interface with game developers, the OpenGL ARB, and ATI's internal hardware architects. The group also develops and publishes novel rendering techniques as well as all of ATI's technical demo content. Jason regularly presents at game developer conferences around the globe and publishes on novel real-time rendering techniques. **Tutorial: (104) Advanced Visual Effects with Direct 3D** *See page 29* **Sponsored Session: Real-Time 3d Scene Post-Processing** *See page 99*

Ron Moravek
See www.gdconf.com for bio. **Panel: What It Takes To Run a Successful Game Studio** *See page 49*

Michael Murguia
Michael's career in games began as a 3D Artist in 1994 when he was hired by PEI, a game developer in Pinole, CA. That studio became Maxis Studio One, the console division for Maxis, the creators of SimCity. Michael stayed on to introduce 3D art tools as an integral part of the development process, working on such titles as SimCity 2000, SimCity Sega Saturn, SimCopter, and The Streets of SimCity. In 1997, Maxis was acquired by EA, and with his partners, Michael started New Pencil, Inc., an on demand art production facility for game developers. Michael handles all business aspects of New Pencil. Since 1997 New Pencil has contributed to over twenty original titles including EA's The World Is Not Enough, S3's Unreal Tournament, God Games' Myth 3 The Wolf Age, Wild Tangent's Snowboard Extreme and BMX Pro, and most recently Maxis' SimCity4. New Pencil provided over 75% of the art content for the number one best selling franchise in the industry, TheSims. **Roundtable: Resource Management/Scheduling Best Practices** *See page 71*

Ray Muzyka
Dr. Ray Muzyka is the joint CED and co-executive producer at BioWare Corp. Ray co-founded BioWare in 1995 with the other joint CED at BioWare, Dr. Greg Zeschuk. Ray was the co-executive producer on Baldur's Gate, Shattered Steel, MDK2, MDK2: Armageddon, Baldur's Gate: Tales of the Sword Coast, Baldur's Gate II: Shadows of Amn, Baldur's Gate II: Throne of Bhaal, and Neverwinter Nights. Ray is currently co-executive producer on BioWare's upcoming project with LucasArts, Star Wars: Knights of the Old Republic as well as several other, as-yet unannounced projects. In addition to his development role, Ray also co-manages the financial, human resources, operations, and legal business side of BioWare, and has recently finished his executive MBA program at the Ivey School of Business, UWO. Ray is also a board member of the Academy of Interactive Arts and Sciences, Co-Chairman of the Business Committee of the International Game Developers' Association, and serves as a Director and Co-Chairman of CodeBaby Corp., another software company developing a next generation interface for digital media and the Internet. **Roundtable: Checklist for a New Publisher** *See page 44* **Roundtable: Promotion/Marketing Best Practices** *See page 71*

Michael Narayan
Michael Narayan is the development lead for DirectPlay and has been with Microsoft since 2000. When he's not spending his time riding his motorcycle or giving presentations in the distant corners of the world, he leads the development team in an effort to make multiplayer gaming easier for developers and more exciting for end-users.**Sponsored Session: How To Write A Network Layer** *See page 94*

Alexander Nareyek
Alexander Nareyek studied computer science at the TU Berlin, where he also received his Ph.D. He won the GMD's 1997 Best Degree Thesis Award, was a winner of the BMWi's Founders Competition Multimedia 1998, and was awarded an enhanced Ph.D. scholarship by the German Research Foundation (DFG). He is involved in many AI events, e.g., as organizer of several workshops on planning topics and as chairperson of the IGDA's AI Interface Standards Committee. Since 2002, he has been guest researcher at Carnegie Mellon University on an Emmy Noether fellowship. **Roundtable: AI Interface Standards: The Road Ahead** *See page 66*

John Newcomer
See www.gdconf.com for bio. **Panel: Three Great Mobile Games** *See page 63*

Hubert Nguyen
Hubert Nguyen is a programmer working in Nvidia's demo team. **Sponsored Session: Ogres & Fairies: Secrets of the Nvidia Demo Team** *See page 96*

Mai Lea Nguyen
See www.gdconf.com for bio. **Panel: Creating Character Models: A Review of Current Techniques** *See page 108*

Bob Nicoll
Bob has been both CG production artist and instructor for the past twenty five years. His production experience spans broadcast, film, and games. Bob's experience comes from being a CG production artist, compositor, art director, and designer. Bob has taught on the university level for 4 + years, and as a production trainer for 8 years. His skills speak to the notion of convergence of medias and his training program reflects his focus. **Sponsored Session: Convergence-Feature Film and Games** *See page 107*

David Nixon
David Nixon has a harbored long-standing passion for enabling independent developers to bring innovative new products to market. Three years ago David abandoned a nine year career in PC and console development to roll the dice on something completely different. The gamble has paid off thus far. In the last three years he has produced and shipped more than 120 online downloadable titles into the RealArcade service including hits such as Diamond Mine, Collapse, Rebound, Smallball Baseball, and Gutterball 3D. David's also helped create such fantastic yet resounding failures as Tex Atomic's Big Bot Battles and Super Bubble Pop. **Panel: Product Success in Online Software Distribution** *See page 47*

Mat Noguchi
Mat Noguchi joined the industry in December '00 to work as the Halo tools programmer for Bungie after graduating from the University of Maryland. In a previous life, he was a programmer for the Visual Studio team; however, a lack of any serious work for six months encouraged him to pursue his lifelong dream of being a games programmer. Nowadays, when he's not raging about the work left to do for Halo 2, he's hacking away at the next best thing since sliced bread. Not one to avoid the spotlight, he's decided to reach out to the community and show them just how much he did to help ship HALO. Mat is happily married to Patti, a wonderful and understanding woman. (The fact that they're still married after shipping Halo is testament to that.) **Lecture: Halo: Development Evolved** *See page 59*

Yasuhiro Noguchi
See www.gdconf.com for bio. **Panel: Communicating With the Mothership: Interfacing Between American Subsidiaries and Their Japanese Parents** *See page 77*

Eric Nunamaker
Eric Nunamaker has been in audio/sound production for game development for 10 years. He is a musician himself, performing with various groups, and is currently a member of the Utah National Guard 23rd Army Band. As audio director he oversees all audio requirements for Alpine Studios projects, from management to production. Eric has a bachelor's degree in music education from Brigham Young University, and a certificate in computer programming from Control Data Institute. Among his skills used at Alpine Studios are music composition, engineering, and sound design/recording. Eric has completed management training sessions and has supervised several sound teams in the audio industry, as well as managed outside contracting and recording production. **Lecture: Smartly Define and Use Your Audio Budget** *See page 40*

James O'Brien
James O'Brien is an assistant professor of computer science at the University of California, Berkeley. His primary area of interest is computer animation, with an emphasis on generating realistic motion using physically based simulation and motion capture techniques. He received his Ph.D. in computer science with an emphasis on computer graphics and animation from the Georgia Institute of Technology. James has authored numerous papers, including several presented at the ACM SIGGRAPH conference, spoken at GDC, and his work has been featured multiple times in the SIGGRAPH Electronic Theater. He has been the recipient of several awards, the most recent a research grant from the Dkawa Foundation. **Lecture: Beyond Bouncing Boxes: The Physics of Things That Bend and Break** *See page 88*

Marty O'Donnell
Marty O'Donnell received his masters of music degree in composition, with honors, from USC in the early 80's and since then has written and produced numerous original scores for TV, radio and film. Some of his commercial work includes Flintstones Vitamin's "10 Million Strong and Growing", Mr. Clean, Principal Financial, McDonald's, Kelloggs, and many others. In 1997 his company, TotalAudio, produced sound design, foley and final mixes for Cyan's

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RIVEN, THE SEQUEL TO MYST, and all the original music, voices, and sound design for Bungie's award winning MYTH: THE FALLEN LORDS. TotalAudio went on to produce the audio for Valkyrie Studio's SEPTERRA CORE, LEGACY OF THE CREATOR and Bungie's MYTH II: SOULBLIGHTER. In May of 2000, ten days after Marty accepted a full time position with Bungie Software focusing entirely on the audio production for ONI and HALO, Microsoft purchased Bungie and moved them to Redmond to develop games for the Xbox. The audio for HALO received numerous industry awards including The Game Developers Choice Award, The Edge Award, and Best Soundtrack of 2002 from *Rolling Stone Magazine*. Although still co-owner of TotalAudio with Mike Salvatori who stayed in the Chicago studio, Marty is currently audio director for Bungie Studios at Microsoft. He has been married for 25 years to Marcie and they have two daughters, Alison and Christine. **Panel: DOES MELODY MATTER?** *See page 37* **Lecture: HALO: DEVELOPMENT EVOLVED** *See page 59*

Dan O'Connell Offner

Daniel D'Connell Dffner is the founder of Dffner & Anderson in Los Angeles, CA and has participated as a panel member on the GDC software contracting tutorial for several years. Dan has an extensive law practice representing software developers, publishers, and creative talent. His clients include THQ and UbiSoft. **Tutorial: (207) MAKING AND MANAGING THE AAA GAME DEVELOPMENT DEAL** *See page 32*

Doug Oglesby

Doug Oglesby is a lead artist at Red Storm Entertainment and has worked on nine game titles in some capacity, seven of them at Red Storm and four as lead artist (POLITIKA, RUTHLESS.COM, SHADOW WATCH, and ANNE MCCAFFREY'S FREEDOM: FIRST RESISTANCE). Doug received his degree in communication arts, with a focus in graphics and illustration, and worked for five years in television, during which he received an Emmy and five Emmy nominations, as well as three international awards from the Broadcast Designers Association. Doug also had brief stints as a freelance illustrator, a potter, and a children's book illustrator. **Roundtable: ART MANAGEMENT FOR ARTISTS** *See page 106* **Lecture: STEPPING AWAY FROM THE PACK: RESOURCES AND METHODS FOR DEVELOPING ART STYLES THAT ARE MEMORABLE AND ATTENTION GRABBING** *See page 111*

Jennifer Olsen

Jennifer Olsen has been with *Game Developer* magazine since 1999 and is currently editor-in-chief. She plans, develops, and edits content for *Game Developer*'s worldwide subscriber base of 35,000. Over her years with CMP Media's Game Network, Jennifer has also done editorial and development work for Gamasutra.com and the Game Developers Conference. Prior to her tenure at CMP, she drove a bus and dabbled in classical philology. **Group Gathering: MEDIA PROFESSIONALS GROUP GATHERING** *See page 69*

Clint Ourso

Clint Durso graduated from Louisiana State University in electrical engineering. After graduating, he worked in the Washington, D.C. area doing project management consulting and implementation. He moved to Birmingham, Alabama to work at BellSouth as a project manager and resigned in 2000 but returned to BellSouth as a contractor for about ten months before pursuing employment in the Champaign area. He answered an ad for a producer/project manager for Volition and was hired in April 2002 as the project manager for RED FACTION 2, starting about halfway through their scheduled development cycle. Clint had no prior game industry experience and was the first project manager hired at Volition. He received his project management professional certification in August. **Lecture: RED FACTION: BUILDING A SUCCESSFUL PS2 FRANCHISE** *See page 81*

Kirk Owen

Kirk Owen is the president and co-founder of leading interactive entertainment agency Dctagon Entertainment. Kirk is responsible for signing many of Dctagon's key clients, including industry legend Peter Molyneux. While working at Dctagon Entertainment, Kirk has negotiated hundreds of game publishing deals in markets spanning the globe, including Germany, Spain, Italy, the Netherlands, Brazil, Argentina, Korea, Japan, North America, and Singapore. Kirk has also signed over 50 interactive entertainment clients from Canada, the United Kingdom, Sweden, Finland, Germany and the United States.

An experienced entrepreneur, Kirk has started five businesses and holds a master's in business administration from Duke University's Fuqua School of Business and bachelor's degree in economics and political science from Claremont McKenna College. Prior to founding Dctagon, Kirk worked as a management consultant for Ernst & Young and served as a U.S. Army officer in Germany. **Roundtable: FINANCE BEST PRACTICES** *See page 67*

Sheldon Pacotti

Sheldon Pacotti has a B.S. in mathematics from MITand a B.A. in English literature from Harvard. Sheldon has published stories: Evil Spirits Travel in Straight Lines, The Bridge, Khodoki, Bellowing Ark, Incantation, CHDWK, Match Heads and Demiurge. He's received the following writing awards: fourth place in the L. Ron Hubbard Writers of the Future Contest and the Randall Jarrel Fellow form the University of North Carolina at Greensboro. He spent ten years as a professional programmer at MIT's Media Lab, Cray Research, frogdesign, Human Code, and doing independent consulting. **Lecture: TOWARD MASSIVELY RESPONSIVE CONVERSATIONS** *See page 63*

Tito Pagan

Tito Pagan has been in the gaming industry for over 10 years and has worked in every capacity as a computer artist, from texture artist to art director. He has created real-time art content for over 20 published software products ranging from games, educational, advertising, and 3D visualization applications for the PC, Xbox and the Internet. Throughout his career, Tito has dedicated himself to establishing proven methods for creating rich, high performance real-time content using streamlined art paths with off-the-shelf authoring software. Having worked in the trenches on each of his projects for 5 well-recognized game companies, Tito's perspective is rooted entirely on a production environment approach to creating cool art quickly. Tito instructed CG classes at DigiPen and GDC in the past and has since developed effective ways of teaching these approaches to other industry artists. He has also shared such art production expertise in several past *Game Developer* magazine articles. **Lecture: FACIAL ANIMATION FOR GAME CHARACTERS** *See page 109*

Jason Page

See www.gdconf.com for bio. **Panel: HOW TO MIX DISCRETE SURROUND SOUND FOR PLAYSTATION 2** *See page 38*

Frank Pape

Frank Pape recently joined Microsoft as the lead product planner for Microsoft Games. Frank is in charge of all facets of product acquisition including: industry research and acquisition targeting, internal due diligence, deal term negotiation, legal document drafting oversight, and relationship management. Prior to joining Microsoft, Frank directed Electronic Arts' business development efforts for five years. Frank was responsible for the acquisition of and production oversight on dozens of titles that have shipped for EA, as well as for several titles slated to ship in 2003. Frank received the EA Award of Excellence for his work. Prior to joining EA, Frank worked at Activision for two years, was an original member of their business development unit, and acquired a substantial number of products for their publication. Frank received his B.A. from Stanford University, as well as an M.A. and an M.B.A. from George Washington University. **Tutorial: (207) MAKING AND MANAGING THE AAA GAME DEVELOPMENT DEAL** *See page 32* **Lecture: COMPLETION BONDING FOR GAME DEVELOPMENT PROJECTS** *See page 44*

Gershon Parent

Gershon Parent has been a software design engineer for over 10 years, eight with Microsoft, five with DirectX Graphics. He's the lead developer/architect for display driver compatibility tools on the DirectX Graphics team, project lead for the Display Compatibility Test Kit (DCT) used by the Windows Hardware Quality Lab (WHQL) for Self-Test; qualification of display drivers and hardware for the designed for windows; logo. **Tutorial: (211) MICROSOFT DIRECTX DEVELOPER DAY** *See page 33*

Walter Park

Walter Park has been working in the visual arts industry for the past 11 years. While studying illustration at Brigham Young University, Walter began work for Viewpoint Datalabs in Orem, Utah as a 3D character modeler. While at Viewpoint, he modeled characters for various movies such as *Species* and *Batman Forever*. After Viewpoint, Walter began work at Saffire, a game company he has been with for the last 8 years. There, Walter has worked as an artist for numerous titles and as lead artist for BIOFREAKS on the N64, PSX, and PC and XENA: TALISMAN OF FATE for the N64. He has just finished work as lead artist on BARBARIAN for the PS2, Gamecube and Xbox. **Roundtable: MAKING FANTASTIC ART FAST** *See page 110*

Leonard Paul

Leonard Paul attained his honours degree in computer science at Simon Fraser University in BC, with an extended minor in music. He has over five years of game audio programming and music composition experience in the computer gaming field. He worked on FIFA '95, NBA LIVE '95, NBA LIVE 2000, NBA TONIGHT, MODERNGROOVE: MINISTRY OF SOUND EDITION, NEED FOR SPEED: HOT PURSUIT 2, SEGA SOCCER SLAM, HITZ 2003 and other titles at Electronic Arts Canada, Radical Entertainment, moderngroove entertainment and Black Box Games. He wrote an article entitled *Moderngroove: Audio Postmortem* for GamaSutra in December 2001 as well as writing for other publications such as the ZD Developer network. Leonard is a professional musician and composer, having composed and arranged music for Electronic Arts as well as composing for film and theatre. **Lecture: GAME AUDIO : CODING VS. AESTNETICS** *See page 38*

Daniel Peacock

See www.gdconf.com for bio. **Sponsored Session: EAX ADVANCED HD: EAX 4.0** *See page 37*

Nick Peck

See www.gdconf.com for bio. **Lecture: WHAT PRODUCERS SHOULD KNOW ABOUT AUDIO** *See page 82*

Jonathan Peedin

Jonathan Peedin leads the art direction for Red Storm. The studio is known for creating TOM CLANCY'S GHOST RECON and the RAINBOW SIX line of games. After receiving his BFA in painting and drawing at East Carolina University, Jonathan started his career doing graphics and illustration work at Fringe Multimedia. Jonathan then landed the job with Red Storm and was quickly promoted to the role of lead artist, serving in that position for both RAINBOW SIX and ROGUE SPEAR. To assist in the company's largest product, Jonathan accepted an associate producer role on GHOST RECON so he could help in keeping the schedules realistic and achievable. Now all that knowledge and experience is being combined to assist the company on a management level where he oversees the entire art staff. Jonathan is currently contributing to several new products based in the Clancy franchise. **Panel: Art Directors Panel: AESTHETICS AND THE ALMIGHTY DOLLAR** *See page 106*

Andy Pennell

Andy Pennell has been creating debuggers for almost 20 years now and using them for even longer. His first debugger creation was MonQL for the 68008 in 1983, but now in 2001 he is a dev lead on the Visual Studio debugger. Hex addresses have gone from 4 digits to 64 digits in this time, and he's still typing them wrong occasionally. His favorite keypress is F8 and his favorite window is QuickWatch. **Tutorial: (211) MICROSOFT DIRECTX DEVELOPER DAY** *See page 33*

Craig Pepper

Craig Peeper is the lead developer for D3DX and has been on the team since DirectX7. D3DX provides user-mode functionality for Direct3D, including mesh optimization, texture processing, and the high level shading language compiler/runtime. Prior to his work on D3DX Craig worked in Microsoft Graphics Research. **Tutorial: (211) MICROSOFT DIRECTX DEVELOPER DAY** *See page 33*

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Ken Perlin
Ken Perlin is a professor in the department of computer science and director of the New York University Media Research Laboratory and Center for Advanced Technology. Ken's research interests include graphics, animation, and multimedia. In 2002 he received the NYC Mayor's award for excellence in Science and Technology and the Sokol award for outstanding Science faculty at NYU. In '97, he won an Academy Award for Technical Achievement for his noise and turbulence procedural texturing techniques which are widely used in feature films and television. In '91, he received a Presidential Young Investigator Award from the National Science Foundation. Ken received his PhD in computer science from NYU in '86 and a BA in theoretical mathematics from Harvard in '79. He was head of software development at R/GREENBERG Associates in New York from 1984 through 1987. Prior to that, from '79 to '84, he was the System Architect for computer generated animation at Mathematical Applications Group. TRON was the first movie for which his name got onto the credits. He has served on the Board of the NY chapter of ACM/SIGGRAPH, and currently serves on the board of the New York Software Industry Association. **Tutorial: (150) IGDA Academic Summit** *See page 28*

Michael Perry
Michael is a 10-year veteran of EA/Maxis, during which time he has enjoyed working in a variety of roles on several games with some amazing people. Michael produced and designed the award-winning title SimFarm with designer/programmer Eric Albers, and produced Yoot Saito's award winning title SimTower. He also produced and programmed the Windows 95 version of Will Wright's SimCity Classic, and led the architecture design and development of the groundbreaking Sims Exchange on TheSims.com web site. Michael even scored the soundtrack for one game, for which he profusely apologizes and sincerely promises to never do again. Most recently, Michael was the design director of the PlayStation 2 version of The Sims. **Panel: When the Site Hits the Fan: Wrangling Community Fansites** *See page 49*

Lee Petty
Lee Petty has worked in the video game and interactive media industries since 1993. In addition to his work in games, Lee has worked as an artist in the comics, film and video, and print media industries. Before co-founding Circus Freak Studios, Lee worked for Accolade/Infogrames on a variety of projects including Looney Tunes Racing, Slave Zero, Ballistic, and various Test Drive products. Lee is currently art director at Circus Freak Studios, a video game development house, located in Campbell, CA. Circus Freak Studios' first game was Superman: The Man of Steel, which was released for the Xbox in November 2002. **Panel: Art Directors Panel: Aesthetics and the Almighty Dollar** *See page 106*

Scott Pink
Scott W. Pink is special counsel to the Intellectual Property Transactions Group of Gray Cary Ware & Freidenrich. Scott has extensive experience in the electronic entertainment industry, having served as vice president and general counsel for Prima Games, the world's largest strategy guide publisher, and outside counsel to several computer game developers and game related publishers. He has spoken and published extensively on intellectual property and internet law issues, including the acclaimed *The Internet and E-Commerce Legal Handbook*. Former chair of the American Corporate Counsel Association's Intellectual Property Committee and the San Francisco Bar Association Intellectual Property and Computer Law Sections, he is current deputy chair of the American Bar Association's Cybersecurity Task Force. He is a graduate of Harvard University and Harvard Law School. **Lecture: Going Global: Effective Strategies for Protecting Intellectual Property Worldwide** *See page 45*

Patricia Pizer
Patricia Pizer's debut in the gaming industry was at Infocom in 1988, making games back when you didn't even need graphics. She later returned to the fold as a game designer for Boffo Games. Over the course of her career, she worked at CogniToy, THQ/GameFx, and Harmonix Music. She was the lead designer, then creative director, of the Asheron's Call 2 at Turbine Entertainment. Currently, Patricia works with ubi.com as an MMO design specialist on their upcoming release, Uru: Online Ages Beyond Myst. She works with other game designers to examine some of the most pertinent MMO design issues today. A founder of the Boston Area Game Developers' Network, she is also serving on the board of directors of Zform, developers of game software for the visually impaired. Mostly though, she just likes to play games. **Panel: Story Summit** *See page 62*

Sheri Pocilujko
Sheri Pocilujko is product support administrator at Incredible Technologies, Inc. in Arlington Heights, Illinois. An avid gamer herself, she plays all types of games from board and card games to PC, massive-multiplayer, and console games. While a volunteer for a collectible card game company she formed Matriarchal Society, a co-ed community whose goals were to help other volunteers increase their female player base and to help those females who were already players. Sheri currently finds herself immersed in all parts of the development cycles of products at Incredible Technologies including quality assurance, customer service, and web, marketing, and sales support. **Panel: Profiling the Female Gamer: A Look at How She Buys and Plays** *See page 61*

Robyn Poirier
Robyn Poirer has worked on a number of different big licensed brand projects such as Disney/Pixar's Monsters, Inc., Barbie's Kelly Club, Nickelodeon's Blues Clues, and most recently as lead artist on Nickelodeon's Spongebob Squarepants 2 GBA, Cartoon Network's Power Puff Girls 2 GBA, and the upcoming Disney/Pixar's Finding Nemo. She has worked on setting the art style and direction for these games, contributed to their successful game design to play up the unique art style and elements of the license, and worked directly with licensors and publishers to negotiate some of the finer points of how to best translate the license to GBA. **Lecture: Brands Brands Branos: Working with High Profile Licenses and Still Making a Great Game!** *See page 76*

Bruce Poitevan
Bruce Poitevin is the pioneer in using completion bonds to help finance video game development. In 1996, he created the first performance bond ever issued for an interactive title. This first deal was done almost six years ago with the cooperation and support of Electronic Arts and Silicon Valley Bank. Since that time, he has brought together publishers, developers, banks and bond companies in more than 20 titles with budgets totaling more than $43 million. He has been directly involved in all aspects of the transactions, including the marketing, due diligence reviews, legal documentation and project monitoring.

Bruce has over 20 years experience as a bond professional, including ten years as a broker in San Francisco handling the bond needs of many of Silicon Valley's best known companies, including such names as Intel, Sun, Hewlett Packard, Apple, Cisco and Oracle. This long experience with cutting edge technology and software development formed the base from which Bruce created a bond program tailored specifically for the interactive media industry. By working closely with major publishers, developers and banks, Bruce has developed an innovative and flexible program that now has participants on 3 continents. He has extensive contacts throughout the interactive industry, and is respected as a senior and mature individual. **Panel: A Review of Funoing, Mooels for the Inoepenoent Developer and Their Implications** *See page 48*

Mike Pondsmith
See www.gdconf.com for bio. **Panel: Story Summit** *See page 62*

Darrell Porcher
Darrell Porcher is director of e-commerce applications for Sony, E-Solutions division by day, chapter coordinator for the New Jersey chapter of the IGDA and garage game developer at all other times. Darrell has been developing games since the tender age of 10 on the Atari 400 computer (the one with the chiclet keyboard) and has recently been developing games for the latest in console platforms (big jump). He has taught courses on beginning game development to students aged 10 and above to a group within New York City called the "Harlem Game Wizards." He also frequently holds seminars at local colleges promoting game development as a hobby and career path. Darrell has been an active member in two of the independent game festival's finalist teams and has always been a very vocal member of the IGDA since he joined in 1995. **Group Gathering: Diversity in Game Development Grdup Gathering** *See page 67*

Nick Porcino
Nick Porcino has worked in games, robotics, and AI since 1980. His published papers focus on the applications of neuroethology to robotic and agent control. He worked in Japan on some of the earliest applications of AI to toys and robotic pets. Most of his career has focused on games, and he has shipped a great many on platforms as diverse as the Colecovision, Windows, and PlayStation 2. Nick is a senior systems engineer at the LucasArts Entertainment. **Roundtable: AI Interface Stanoaros: The Roao Aheao** *See page 66*

Jay Powell
Jay Powell, an agent at Octagon Entertainment, received his bachelor of arts from the University of North Carolina at Chapel Hill. In his five years at Octagon, Jay has arranged numerous deals across the globe for PC, Gamecube, PlayStation 2, and Xbox games. Jay has also proven a key evaluator of projects, having secured some of Octagon's most successful games.

With almost two decades of gaming experience, Jay's industry insight has been immensely beneficial to Octagon's clients and publishing partners. Jay regularly provides advice for the development community through GIGnews and the Game Oevelopers Conference. Jay also contributed chapters on contract negotiation to the books *Game Design Methods* and *Secrets of the Game Business* from Charles River Media. Jay's experience has allowed Octagon to create and maintain a property evaluation and acceptance methodology that exceeds the standards and expectations of the interactive industry. **Lecture: Negotiating the Best Deal Possible** *See page 47*

Ted Price
Ted Price is the president and CEO of Insomniac Games, Inc. Ted founded the company in 1994 with the very specific intention of becoming a console developer. The company's first game, Disruptor, released for the PlayStation in 1996 was a critical success, winning several industry awards for Best First Person Shooter. But it wasn't until the release of Insomniac's second game, Spyro the Dragon, that Insomniac garnered worldwide attention. Insomniac followed up the first Spyro with two sequels, Spyro 2: Ripto's Rage and Spyro: Year of the Dragon. All three titles were smash hits and the combined

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worldwide sales of the SPYRO series has now reached over 10 million units.

Insomniac's latest title, RATCHET AND CLANK, is a unique gameplay experience for the PS2 that builds on Insomniac's expertise in developing character-action games. Released November, 2002 it has already shipped over 1.5 million copies worldwide.

Ted's responsibilities at Insomniac include directing the company's day-to-day business as well as overseeing its projects. Ted is the vice chairman of the Academy of Interactive Arts and Sciences and sits on the advisory boards for the Gnomon School of Visual Arts and IDSA's Electronic Entertainment Expo. Ted holds a degree in English from Princeton University. **Tutorial: (207) MAKING AND MANAGING THE AAA GAME DEVELOPMENT DEAL** *See page 32* **Lecture: DEATHMATCH:TEO PRICE VS. JASON RUBIN** *See page 56*

Chris Prince

See www.gdconf.com for bio. **Tutorial: (109) XBOX OPEN FOR UNSIGNED DEVELPERS** *See page 30*

Illka Raiskinen

Illka Raiskinen has been working in the area of mobile services since the early 1990s. He is currently in charge of the Entertainment and Media Business Unit activities within Nokia Mobile Phones, focusing on making games, music and media mobile. **Sponsored Session: DEVELOPING GAMES FOR N-GAGE™ FROM NOKIA** *See page 90*

Dave Ranyard

Dave Ranyard has been in the games industry for the last 6 years. Dave started out as an AI programmer at Psygnosis, later moving to SCEE's London Development Studio where he is currently the audio manager. He has worked on titles including WIP3OUT, COLONY WARS, THIS IS FOOTBALL and THE GETAWAY. Prior to the games industry he lectured in artificial intelligence at the University of Leeds where he also gained a PhD. in the subject. Dave is a keen musician and has written and produced many records over the past 10 years. In 1998 took a career break to tour the US and Europe with his band Supercharger. **Lecture: AUDIO PROGRAMMING FOR VERY LARGE PROJECTS** *See page 36*

Martin Reddy

Martin Reddy is a graphics software engineer at Pixar Animation Studios where he works on graphics optimization techniques. Previously, Martin worked at SRI International in the area of terrain visualization, involving the real-time display of massive terrain databases distributed over wide-area networks. His research interests include level of detail, visual perception, and computer graphics. His doctoral research involved the application of models of visual perception to real-time computer graphics systems, enabling the selection of level of detail based upon measures of human perception. He received his BSc from the University of Strathclyde and his PhD from the University of Edinburgh, Scotland. He recently served for two years on the board of directors of the Web3D Consortium. **Tutorial: (209) LEVEL OF DETAIL MANAGEMENT FOR 3D GAMES** *See page 33*

Eric Rees

Eric Rees has been playing games since the age of four and throughout his teens and twenties dabbled in the game industry, but has always taken a "don't mix business with pleasure approach" to it. However, after spending the last seven years in the IT field, he has decided to jump head first into what he is most passionate about (he claims it came about as a "drunken epiphany"). Taking his first steps as a quality assurance analyst (a.k.a. game tester) for Infogrames, he has began his quest to do what he loves... "Do what you love and you will be brilliant at it" – Barbara Sher. **Roundtable: QA/TESTING BEST PRACTICES** *See page 71*

Steve Reid

Steve Reid leads Red Storm's production efforts. The studio, know for creating the RAINBOW SIX line of games, is currently working on several new products including the next installment of the 2001 PC Game of the Year, TOM CLANCY'S GHOST RECON. Steve is one of the original founders of Red Storm Entertainment, having previously served as the director of creative design from the company's formation in 1996 to the end of 2000. Steve received a master of fine arts degree from East Carolina University, has taught a variety of college art disciples, and now collaborates with local and national colleges as an advisor in the digital arts. He has participated as both a panelist and a guest speaker at the Game Developer Conference. **Panel: ART DIRECTORS PANEL: AESTHETICS AND THE ALMIGHTY DOLLAR** *See page 106*

Guennadi Riguer

Guennadi Riguer is a software developer at ATI Technologies where he is helping game engine developers to adopt new graphics technologies. Guennadi holds a degree in computer science from York University and has previously studied at Belorussian State University of Computing and Electronics. Prior to joining ATI he worked on a wide variety of software development projects. **Tutorial: (104) ADVANCED VISUAL EFFECTS WITH DIRECT 3D** *See page 29*

Sean Riley

Sean Riley is Senior Software Engineer at NCSoft in Austin Texas. He has been working in the games industry for five years with stops at Segasoft, Origin Systems and Ninjaneering where he was a founder and lead developer. Coming from the database industry, he has been focused on servers, networking, databases and game programming for online games including VIGILANCE, the massively multiplayer 10Six, the UO2 project at Origin and the HOLLYWORLD project at Ninjaneering. He is also involved in open source development and a happy user of the python programming language. **Roundtable: PYTHON IN THE GAMING INDUSTRY** *See page 99*

Brian Robbins

Brian Robbins is a software engineer for Worlds Apart Productions, a developer of online trading card games and text-based RPG's. Prior to Worlds Apart, he spent three years at CleverMedia developing web-based Shockwave and Flash games. Brian has presented at numerous industry conferences including GDC, WebDevCon, and Macromedia's UCDN. He has a B.S. in computer science, and an MBA from the University of Denver. Brian currently lives in Denver where he can usually be found teaching his dog the next stupid pet trick. **Roundtable: WEB-BASED GAMES ROUNDTABLE** *See page 65* **Roundtable: ALTERNATIVE BUSINESS MODELS FOR ONLINE GAMES** *See page 66*

Stuart Roch

Stuart Roch began working for Virgin Interactive in 1996 as a quality assurance analyst. The same year he moved up to the position of supervisor in his department. In 1997 he became an assistant game designer for Virgin's internal studio and in 1998 joined Shiny Entertainment as level designer and assistant producer. Upon completion of WILD 9, Stuart was promoted to producer and then moved again to the position of executive producer during development of SACRIFICE. Currently, Stuart is helping complete ENTER THE MATRIX where his responsibilities include managing and leading the development team and acting as the primary liaison between Shiny Entertainment and the *Matrix* sequel production companies. **Lecture: MY MATRIX EXPERIENCE: A SURVIVAL GUIDE TO WORKING WITH MOVIE LICENSES** *See page 80*

Dave Rohrl

Dave Rohrl is currently employed as a senior producer in Electronic Arts' Pogo Studio. Since joining Pogo in 2000, Dave has produced and/or designed 15 web games, including top hits WORD WHOMP, TUMBLE BEES, HAMMERHEAD POOL, and PAYDAY FREECELL. From 1996-2000, Dave worked as producer/designer at The Learning Company, leading design and development for PC and Mac games. Prior to that, Dave worked extensively in QA, process development, and technical support. **Roundtable: ADVANCED DOCUMENTS FOR PROJECT MANAGEMENT** *See page 76* **Panel: FINDINGS OF IGDA'S 2002/2003 ONLINE GAMES WHITEPAPER** *See page 68* **Panel: CASUAL GAMES PANEL** *See page 55*

Roppyaku Tsurumi

Roppyku Tsurumi is a freelance producer currently working for Sony Computer Entertainment (Japan) through his company 0600design. He began his career at Sega Japan in 1989, where he developed many games based on Western licenses, such as MICHAEL JACKSON'S MOONWALKER, SPIDERMAN, and STAR WARS, and also produced original character action games. After joining Sony in 1996 as a producer, he participated in some worldwide titles created by US developers, Naughty Dog, Insomniac, and Cerny Games, focusing on their successful release in the Japanese market. The CRASH BANDICOOT series, the SPYRO THE DRAGON series, JAK & DAXTER, and RATCHET & CLANK have all benefited from his suggestions as to how to adapt the games best for the Japanese market. **Lecture: HOW TO MAKE YOUR GAME SUCCESSFUL IN JAPAN** *See page 59*

Doug Rogers

Doug Rogers is a staff member of technical developer relations at Nvidia Corporation. He is the author of Nvidia's texture compression tools, including the Normal Map Filter and the Texture Compression plugins for Adobe Photoshop. He is currently developing advanced tools to create normal maps. **Sponsored Session: ALL YOU CAN EAT POLYGONS: WITHOUT THE FAT** *See page 87*

David Rose

David Rose is an artist at Red Storm Entertainment and worked on a two year-long Gameboy Advance title that had many twists and turns along the production route. David has worked on RUTHLESS.COM, SHADOW WATCH, ANNE MCCAFFREY'S FREEDOM: FIRST RESISTANCE, SUM OF ALL FEARS on the AGB and currently is working on the GHOST RECON's second mission pack. He also provided marketing and miscellaneous other work on various titles. David received his BFA in communication arts with a double concentration of graphic design and illustration, worked for two years in television, interned at an ad agency in Florence, Italy, and did volunteer work across part of Europe. In his free time, David paints robots obsessively, has numerous art showings, tries to learn to play the guitar, has his hands full with two dogs and a lovely wife, and likes to travel as much as he can afford to. **Roundtable: TOOLS AND PRODUCTION TECHNIQUES OF 2D LEVEL ART FOR THE GAMEBOY ADVANCE** *See page 111* **Lecture: STEPPING AWAY FROM THE PACK: RESOURCES AND METHODS FOR DEVELOPING ART STYLES THAT ARE MEMORABLE AND ATTENTION GRABBING** *See page 111*

David S Rosenbaum

David Rosenbaum is a member of the Fischbach law firm in Los Angeles, CA and has partricipated as a panel member on the GDC software contracting tutorial for several years. David has an extensive law practice representing software developers, publishers, and creative talent. **Tutorial: (207) MAKING AND MANAGING THE AAA GAME DEVELOPMENT DEAL** *See page 32*

Gary Rosenzweig

Gary Rosenzweig runs CleverMedia, a game development company in Denver, Colorado. CleverMedia has produced more than 250 Web-based games since 1995. It runs four sites of games made with Shockwave and Flash. CleverMedia also produces commercial games, creates games for other companies and licenses games to other Web sites. Gary has a degree in computer science from Drexel University and another in journalism and mass communication from the University of North Carolina at Chapel Hill. He has written nine books on Macromedia Director, the program that makes Shockwave content. His latest books are *Flash MX ActionScript for Fun and Games*, *Sams Teach Yourself Flash MX ActionScript in 24 Hours* and *QUE's Special Edition Using Director 8.5*. **Tutorial: (110) PROGRAMMING GAMES WITH SHOCKWAVE AND FLASH** *See page 30*

Randi Rost

Randi Rost leads a driver development team at 3Dlabs, Inc. that supports ISVs and has been driving the definition of the OpenGL Shading Language since its inception. Randi's team is also responsible for implementing the OpenGL Shading Language on 3Dlabs' line of programmable graphics hardware products. Prior to joining 3Dlabs, Randi was a graphics software architect for Hewlett-Packard's Graphics Software Lab and the chief architect for graphics software at Kubota Graphics Corporation. Randi has participated in emerging graphics standards efforts for over fifteen years, including 12 years of involvement with OpenGL. Randi has been 3Dlabs' representative to the Khronos Group (which defined OpenML) since the group started in

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1999 and chaired the graphics subcommittee of that organization. He received NCGA's 1993 Achievement Award for the Advancement of Graphics Standards. Randi has done numerous talks and tutorials at graphics conferences such as GDC and SIGGRAPH. **Sponsored Session: The OpenGL Shading Language** *See page 96*

Prodipto Roy
Prodipto Roy has worked in the gaming industry in one form or another for the past thirteen years. Starting as a designer and tester for roleplaying, card and board games, he eventually made the transition to a software tester in Microsoft Game Studios. Since this time, he has been most active in the FASA Studio, working on balancing the MechWarrior line of games. **Tutorial: (201) Developing A Play Balance Plan** *See page 31*

Jason Rubin
Jason Rubin, president and co-founder of Naughty Dog, has been developing games since 1985. Jason, partner Andy Gavin, and the Naughty Dog team are responsible for the creation of the Crash Bandicoot franchise, and for developing the first four Crash PSX titles: Crash Bandicoot, Crash Bandicoot 2: Cortex Strikes Back, Crash Bandicoot: Warpeo, and CTR:Crash Team Racing. Together, these titles have sold more than 20 million units worldwide with more than half of the sales coming from outside of the United States. Crash 3 is the only foreign created and developed title to have sold more than a million units in Japan in the history of video games. Currently, Jason and Naughty Dog are working on an undisclosed PlayStation 2 title scheduled for release in 2001. **Panel: Communicating With the Mothership: Interfacing Between American Subsidiaries and Their Japanese Parents** *See page 77* **Lecture: Deathmatch:Teo Price vs. Jason Rubin** *See page 56*

Leah Rubin
Leah Rubin has been the director of human resources of Radical Entertainment since 2000. Leah is responsible for meeting Radical's growing HR needs by ensuring the attraction, retention and development of world class talent. Leah also provides direction and leadership support in all employment practice matters with an emphasis on HR best practices. She holds a bachelor of arts in psychology from the University of British Columbia as well as a diploma in the management of HR from the BC Institute of Technology where she graduated with honors. This spring she will be starting her MBA in human resources at the esteemed Royal Roads University. Leah brings over 12 years of HR management experience, including senior positions at the world class Metropolitan Hotel and Surrey Metro Savings Credit Union. Since she joined Radical the company has won several awards including "Best Company to work for in BC," as selected by BC Business Magazine and "Canada's 50 Best Managed Private Companies," as selected by Arthur Andersen. **Roundtable: Human Resources Best Practices** *See page 69*

Stephen Rubin
Stephen Rubin represents videogame developers, from startups to household names, in such matters as intellectual property protection and enforcement, contracts and licenses, litigation, employment law, and business formation, acquisitions and capital investments. Prior to establishing his own firm, he was in the Antitrust Division of the Department of Justice, a professor of law at the University of Florida, and a partner at a national firm where he headed the antitrust and intellectual property groups. He has served as special master and as a mediator in federal court proceedings. He is the author of several books and a number of articles on antitrust and intellectual property. **Lecture: The Intellectual Property Realm: New Challenges for the Developer** *See page 46*

Samantha Ryan
See www.gdconf.com for bio. **Lecture: Building Development Teams: A Case History of Monolith Productions** *See page 77*

Paul Sage
Paul Sage began his career in the game industry as a support technician for Origin and EA Games. Paul moved on to a OA position and OA lead working on games such as Crusader and Wing Commander IV. Later he began testing Ultima Online moving to the support staff upon launch and eventually supervising the GM department. From there he moved into a design position on Ultima Online to eventually become the lead designer during a period of growth from 175,000 players to 240,000 players. He has been involved as a professional in MMOGs for six years and is an avid gamer. **Lecture: Reputation Systems: Saving Your Service** *See page 61*

Katie Salen
Katie Salen is a game studies scholar and critic. Katie is currently co-authoring a textbook on game design for MIT Press, and has taught courses on game design at the University of Texas and Parsons School of Design. She currently writes a column for *RES* magazine on digital games and culture. Katie has written extensively on game design and game culture and recently contributed to the catalog for GameDN, an exhibition on the history and culture of video games at the Barbican Gallery in London, and is co-creator of Conduit, a forthcoming animated series on the Sci-Fi channel focusing on videogame cinematics. **Lecture: Breaking the Rules of a Game** *See page 54* **Tutorial: (151) Game Design Workshop** *See page 28*

Tobi Saulnier
Tobi Saulnier is VP of product development at Vicarious Visions. Tobi first learned about play testing while developing a number of well-received children's Gameboy Color games, including Blues Clues, Rescue Heroes, and Zoboomafoo. She remembers well the first time she watched a four year old struggle to play what had seemed until then to be a ridiculously easy game! Subsequently, she developed the kid testing program at Vicarious Visions as a way to get designers more and faster feedback on the impact of design tradeoffs on players other than themselves. During the past two years she has learned quite a lot about testing games with kids, and Vicarious Visions has gotten quite organized (and smarter) about it. Tobi has had extensive experience as a facilitator, which is critical to providing an interesting roundtable experience. **Roundtable: Child's Play! How to Use Play Testing to Develop Better Games** *See page 55* **Tutorial: (203) Strategic Planning for Game Developers** *See page 31* **Roundtable: Software Patents and IP Rights in Game Development** *See page 72*

Ben Sawyer
Ben Sawyer is the producer of Virtual U, a million dollar plus foundation funded project to build a university management simulator. Virtual U, now shipping Version 2.1, was a 2000 Independent Games Festival finalist. Ben is also the author of *Serious Games: Improving Public Policy through Game-Based Learning* and Simulation Whitepaper for the Woodrow Wilson International Center for Scholars and was a contributor to *Game Developer* magazine. Ben has authored two books on gaming for Coriolis Group Books and is developing a book on simulations with Paraglyph Press. He has published several research reports on the games industry for DFC Intelligence. **Roundtable: Serious Games: Gaming our Way to a Better Future** *See page 71*

Tim Schafer
Tim Schafer is the president of Double Fine Productions, creators of the action/adventure game Psychonauts. Prior to Double Fine, Tim was a project leader at LucasArts Entertainment Company, where he was responsible for several adventure games, including Full Throttle and Grim Fandango. Tim also co-designed Day of the Tentacle, and served as a writer and assistant designer on The Secret of Monkey Island 1 & 2. **Tutorial: (208) The Art and Science of Brainstorming** *See page 33*

John Schappert
John Schappert, general manager of Electronic Arts' Tiburon Studio, is responsible for the management of EA's Florida operations. This includes overseeing programming, artwork, audio, research and development, quality assurance, and strategy for three of EA Sports top selling franchises: Madden NFL Football, NASCAR Thunder Racing, and NCAA Football for next generation gaming consoles and the PC.

Prior to his current position, John held a variety of senior production and development posts within Electronic Arts. John co-founded Tiburon Entertainment in 1994 and has grown the studio from three original employees to more than 130 current employees. John has overseen the creation of more than 36 games for Electronic Arts, including the best selling Madden NFL Football franchise. **Panel: What It Takes To Run a Successful Game Studio** *See page 49*

Vincent Scheib
Vincent helps direct the demoscene outreach group, which was formed in 2000 to build awareness among graphics professionals. The d.o.g. hosts the annual demoshow at GDC. Presentations are also made at the SIGGRAPH conference and with various media and television agencies. Vincent studies graphics at the University of North Carolina at Chapel Hill. **Group Gathering: Demo Sceners Group Gathering** *See page 66*

Jesse Schell
Jesse Schell is the former creative director of the Walt Disney Imagineering VR studio. The mission of this studio is to invent the future of interactive entertainment for the Walt Disney Company. Jesse worked and played there for seven years as designer, programmer, and manager on several projects for Disney theme parks and DisneyQuest (Disney's chain of VR entertainment centers). His most recent work involves design of family-friendly massively multiplayer worlds, such as Disney's Toontown Online. He has a BSCS from Rensselaer, and an MSIN degree from Carnegie Mellon. In a previous existence, he was writer, director, performer, juggler, comedian, and circus artist for both Freihofer's Mime Circus and the Juggler's Guild. Jesse has recently accepted a position as professor of game design at the Carnegie Mellon University Entertainment Technology Center. **Lecture: Story and Gameplay Are One** *See page 62*

Dan Scherlis
Dan Scherlis is CEO of Etherplay, mobile-game developers and consultants. Dan is an advisor to game developers Floodgate, Realm, Froghop, and Cognitoy, and an associate of venture advisors MTGP. For Comverse Mobile Entertainment he directed content strategy. Dan was CEO of Turbine Entertainment, developers of massively multiplayer games (Microsoft's Asheron's Call). For Papyrus (now a Vivendi studio) Dan established and led game-publishing operations (Indycar Racing). Dan created online publications for Ziff-Davis Interactive/AT&T, and led market analysis at HBO. A contributing editor for Mobile Entertainment Analyst, Dan holds AB, AM, and MBA degrees from Harvard. **Lecture: Doing Business with the Telecom Industry: Understanding their Deal Terms, Culture, Rites & Rituals** *See page 45*

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Adam Schnitzer
Adam Schnitzer received a BA from UC Santa Barbara in 1979 and an MFA in painting from Stanford University in 1984. From 1984-1994, Adam made a living as a landscape painter, showing his work nationally through galleries in Los Angeles, San Francisco and New York. Also during this period, Adam was an adjunct professor of painting and drawing at the College of San Mateo and Cogswell College in Sunnyvale, CA. In 1994 he began his career in the computer game industry as a matte painter at Rocket Science Games. From 1995-1997 was employed at LucasArts Entertainment Company painting 2D sets and building 3D environments on THE DIG, OUTLAWS, and GRIM FANDANGO. In 1997 he went to work for Pixar Animation Studios as a layout artist and received screen credits for *A Bug's Life*, *Toy Story 2*, and *Monsters Inc*. In 2001, Adam returned to LucasArts and has since that time contributed to the soon to be released RTX RED ROCK as both a concept artist and cutscene supervisor. **Lecture: HOW TO BUILD A BETTER CUTSCENE** *See page 110*

Kathy Schoback
As director of external publishing and development at Sega, Kathy oversees relationships with Sega's external North American developers and publishing partners. She has served in various roles in her tenure at Sega, including head of Dreamcast third-party publisher management, regional sales, and consumer service. Kathy has also worked on the Game Developers Conference as part of the management team, and is currently a board member of the International Game Developers Association. **Panel: A REVIEW OF FUNDING, MODELS FOR THE INDEPENDENT DEVELOPER AND THEIR IMPLICATIONS** *See page 48*

Paul Schuytema
Paul Schuytema has been designing and crafting games since he created his first miniatures rules-set for ancient era battles in 1974. Since his first days of design, he has created over 50 games, authored over 200 professional articles, and written over a dozen books.

Paul is currently the chief creative officer and president of Magic Lantern Playware (MLP), where he has produced, designed and shipped five games in the last two years. MLP, founded in late 1998, is located in rural Illinois, with an additional office in Dallas, Texas.

In addition, Paul is currently working with the city and state government to create the Patton Block Center, an info-tech incubator situated within a restored historic landmark which will foster the growth of the computer game development industry in rural Monmouth, IL. **Tutorial: (106) DYNAMIC VISUALIZATION: TOOLS AND PROCESS** *See page 29*

Donald Seegmiller
Don Seegmiller is one of the top living figurative artists in the United States with paintings in over 400 collections. Don is represented by Wadle Galleries Ltd. of Santa Fe, New Mexico. Articles about Don and his work have appeared in all major western art magazines. He is on the faculty at Brigham Young University where he teaches Senior level Illustration, Painting the Human Head, Figure Drawing, and Digital Painting. For the last six years, Don was art director of Saffire Corporation, a leading video game developer located Utah. His art has been featured in *Spectrum 7* and *8*, *Design Graphics Magazine*, *Step by Step Electronic Design* and the *Painter 6* and *7 Wow Book*. He wrote *Character Design and Digital Figure Painting* for Charles River Media. He writes software reviews for magazines, *Critical Depth* web site, and is a regular speaker at the Game Developers Conference. **Tutorial: (101) DIGITAL PAINTING AND SKETCHING** *See page 29*

Scott Selfon
Scott Selfon is the Xbox audio content consultant, assisting composers, sound designers, and audio programmers with technical and creative implementation issues in their Xbox titles. His prior experiences include being the test lead for DirectMusic Producer and DirectX Audio Scripting, and working as a program manager on the MSN creative audio team, which focused on the sonification of web content using interactive soundtracks. Scott has composed music for a wide range of media, including film, television, PC titles, and live performance. Scott is the principal violist of several Seattle-area orchestras and ensembles, and is the artistic director of an a cappella group at the University of Washington. Scott is an alumnus of the University of Southern California, where he obtained dual degrees in music composition (film scoring emphasis) and computer engineering/computer science. **Tutorial: (210) DIRECTMUSIC TUTORIAL** *See page 33* **Tutorial: (109) XBOX OPEN** *See page 30*

Howard Shapiro
Howard Shapiro is a partner in the law firm of Mitchell Silberberg & Knupp. Howard specializes in immigration and nationality law for employers in the interactive software and entertainment industries. **Lecture: U.S. IMMIGRATION ISSUES FOR GAME DEVELOPERS** *See page 49*

Brian Sharp
Brian Sharp has worked as a programmer in and around the game industry for the past seven years. Brian has worked on graphics, physics simulation, sound, OpenGL drivers, and more. Currently, he's coding the sound engine for Ion Storm's titles DX2 and THIEF 3. Brian writes for *Game Developer* magazine and has spoken at the GDC and GDC Roadtrips for the past five years. **Roundtable: PROGRAMMING CLEVERNESS: TRICKS OF THE TRADE** *See page 98*

Lee Sheldon
Lee Sheldon has been writing and designing games since 1994 after a successful career in Hollywood writing and/or producing many popular television shows including *Star Trek: The Next Generation*, *Charlie's Angels* and *Edge of Night*. Titles include solo games such as the award-winning THE RIDDLE OF MASTER LU, DARK SIDE OF THE MOON and WILO WILO WEST: THE STEEL ASSASSIN. For the past three years he has been working on massively multiplayer games for companies as diverse as Cyan and Disney. **Tutorial: (107) ALL STORIES GREAT AND SMALL** *See page 30* **Panel: STORY SUMMIT** *See page 62*

Jake Simpson
Jake Simpson has been in the industry a while—he started out mucking around with Commodore 64's and Sinclair Spectrum. Since then he's not really changed much, just lost some hair, moved to the States, and the power of the machines he's mucking around with has gone up a bit. But he's still mucking around.

He's worked for such companies as Midway games on various arcade games like WWF WRESTLEMANIA, REVOLUTION X and MORTAL KOMBAT III; Raven Software on First Person Shooters like HERETIC II, STAR TREK VOYAGER: ELITE FORCE, SOLDIER OF FORTUNE I & II and JEDI KNIGHT II: OUTCAST; and currently works at Maxis on a next generation SIMS Title, where he takes full advantage of the T1 to 'test Internet connectivity by downloading large files' ("It's Art Mr. Studio President!! Of course it's Art!"). **Lecture: ANIMATION SYSTEM IMPLEMENTATION: WHAT WORKS AND WHAT DOESN'T** *See page 87*

Toby Simpson
See www.gdconf.com for bio. **Panel: SHOW ME THE MONEY! REVENUE MODELS FOR MASSIVELY MULTIPLAYER ONLINE GAMES** *See page 48*

Tim Skelly
Tim Skelly was perhaps the most prolific game designer during the Golden Age of arcade games. Tim designed STAR HAWK, SUNDANCE, RIP-OFF, STAR CASTLE, ARMOR ATTACK, and the revolutionary WARRIOR FOR CINEMATRONICS, and created Gottlieb's first original title, REACTOR. He also pioneered artist rights within the arcade industry; REACTOR was the first arcade game to have the name of its designer displayed on the screen. A trained graphic artist, Skelly then worked as an art director at Incredible Technologies and SEGA. Subsequently he has been working in user interface design, most recently at the Microsoft Research Group. **Panel: OLD SCHOOL: ARCADE GAMES IN THE GOLDEN AGE** *See page 60*

Peter-Pike Sloan
Peter-Pike Sloan has recently moved from the graphics group in Microsoft Research, where he had been for the previous four years, to the DirectX group. Prior to working at Microsoft he was a staff member in the scientific computing and imaging group at the University of Utah and has worked at Evans and Sutherland as well as Parametric Technologies. Peter is interested in most aspects of computer graphics and most of his publications are available at http://research.microsoft.com/. **Tutorial: (211) MICROSOFT DIRECTX DEVELOPER DAY** *See page 33*

Tom Sloper
Tom Sloper has been in the game business for over 20 years, beginning at Western Technologies, where he designed LCD games and the Vectrex games SPIKE and BEDLAM. Then followed stints at Sega Enterprises (game designer), Rudell Design (toy designer), Atari Corporation (director of product development), and Activision (senior producer, executive producer, creative director). Tom has participated in the completion of 119 products, 78 in the role of project leader, with developers in Japan, the UK, Australia, Russia, Europe, and southeast Asia. Doing business as Sloperama Productions, Tom is currently consulting, speaking, and writing on game topics. **Roundtable: MANAGING OVERSEAS DEVELOPERS EFFECTIVELY** *See page 79*

John Smedley
See www.gdconf.com for bio. **Panel: SHOW ME THE MONEY! REVENUE MODELS FOR MASSIVELY MULTIPLAYER ONLINE GAMES** *See page 48*

Harvey Smith
Harvey Smith is the project director of DX2: INVISIBLE WAR and was lead designer on the award winning DEUS EX. Previously, he worked as lead designer of FIRETEAM (an Internet squad game), and since 1993 he has worked in various roles on such games as SYSTEM SHOCK, CYBERMAGE, TECHNOSAUR (a terminated RTS game) and the CD version of ULTIMA VIII: PAGAN. A life-long Texan, he was born in the industrial wastelands south of Houston, but presently lives in the psychically and environmentally healthy climes of Austin. His wife, Rebekah, teaches fifth grade, and they have two super-spoiled dogs, Loki and Star. **Lecture: ORTHOGONAL UNIT DESIGN** *See page 60*

Patrick Smith
Patrick Smith started his career in 1993 as a software engineer in the Enterprise market. In 1998 he made his transition to game development where he now applies his energies to his two primary interests, AI and 3D graphics. **Lecture: LIVING IN A PROCEDURAL WORLD: GROWING A VIRTUAL FOREST** *See page 94*

Randy Smith
Randy Smith is the project director and lead designer of THIEF 3 at ION Storm. Previously, at LookingGlass Studios, he was a designer on THIEF: THE DARK PROJECT and THIEF II: THE METAL AGE. Randy believes in formal analytical design tools and working towards a common design vocabulary. **Lecture: DESIGNING POWER-UPS FOR ACTION GAMES** *See page 56* **Panel: ON ALL LEVELS** *See page 60*

Chacko Sonny
Chacko Sonny is chief financial officer and design director at Savage Entertainment, LLC. At Savage, Chacko is currently working on a 3rd person close combat/action-adventure game for PS2/NGC/Xbox scheduled for release in Christmas 2003. He has also served as creative director ON JURASSIC PARK 3: SURVIVAL (unreleased) and producer on HEAVY GEAR 3 (unreleased) while at Savage. Prior to founding Savage with two colleagues, Chacko worked on HEAVY GEAR and the MECHWARRIOR 2 franchise while at Activision. The MECHWARRIOR 2 3D conversions, which Chacko managed, generated substantial revenue for Activision and put them at the forefront of 3D accelerated games. Before coming to Activision, Chacko worked as a strategic management consultant at McKinsey & Company in New York in their electronics practice, generating financial and operational strategies for a wide range of large technology companies. **Roundtable: FINANCE BEST PRACTICES** *See page 67*

speaker bios

Warren Spector
Warren Spector received his BS in speech from Northwestern University and earned an MA in radio-TV-film from the University of Texas, Austin. In 1983, just a dissertation short of finishing his PhD in communication, Warren left academia to join *Steve Jackson Games* as an associate editor. There, he rose to editor-in-chief and worked on several games, including the award-winning, TOON: THE CARTOON ROLEPLAYING GAME, before accepting a position with TSR, Inc. in 1987. While acting as supervisor of TSR's game division, he collaborated on the design of the TOP SECRET/S.I and BULLWINKLE & ROCKY roleplaying games. During this time, he also wrote a novel *The Hollow Earth Affair* and a Marvel Superheroes Adventure Gamebook, *One Thing After Another*. As a freelancer, he worked on several boardgames and roleplaying adventures for TSR, West End and a variety of other publishers. Warren left pen-and-paper gaming in 1989 to join ORIGIN Systems, Inc. where he co-produced ULTIMA VI and WING COMMANDER. Over the next seven years, he produced ULTIMA UNDERWORLD, ULTIMA UNDERWORLD 2, ULTIMA VII: SERPENT ISLE, SYSTEM SHOCK, WINGS OF GLORY, CRUSADER: NO REMORSE, CYBERMAGE: DARKLIGHT AWAKENING, BAD BLOOD, MARTIAN DREAMS and others. In 1997, after a one-year stint with LookingGlass Technologies as producer of THIEF: THE DARK PROJECT and general manager of the LookingGlass Austin office, Warren founded the Austin studio of Dallas-based game developer, ION Storm. Two years later he accepted a partnership position and seat on ION's board of directors. Warren was project director and producer on the award-winning action/roleplaying game, DEUS EX, published by Eidos in June 2000. As studio director and executive producer on all titles developed at Ion Storm he oversaw the March 2002 release of DEUS EX: THE CONSPIRACY on PlayStation 2. DEUS EX 2: INVISIBLE WAR and THIEF III are both scheduled for release on multiple platforms in 2003. From 2000 to 2002, Warren was elected to serve on the board of directors of the International Game Developers Association. He is currently co-chair of that organization's education committee. **Keynote: SEQUELS AND ADAPTATIONS: DESIGN INNOVATION IN A RISK-AVERSE WORLD** *See page 52* **Tutorial: (150) IGDA ACADEMIC SUMMIT** *See page 28*

John Spitzer
John Spitzer is manager of OpenGL applications engineering at Nvidia Corporation where he oversees development of tools and technology relating primarily to OpenGL applications. John collaborates with game developers on a daily basis, evaluating the technology in their games and assisting in the implementation of advanced visual effects. John has participated in a number of industry standards committees relating to 3D graphics including the OpenGL Architectural Review Board (ARB) and serving as a founding member and chair of the SPEC OpenGL Performance Characterization (SPECopc) organization. While serving on SPECopc, John defined, designed and implemented the industry standard SPECglperf benchmark, and provided several enhancements to the SPECviewperf benchmark. John presents at many developer educational events each year on topics ranging from performance optimization to advanced shading techniques. John holds bachelors and masters degrees in computer science from Rice University. **Tuturial: (205) ADVANCED OPENGL GAME PROGRAMMING** *See page 32*

Carly Staehlin
Carly Staehlin has been making games in Austin, Texas for the last 7 years. She was the producer of ULTIMA ONLINE during the height of its commercial success and then founded Destination Games (now NCsoft) along with Starr Long and Richard Garriott. She serves as the design manager for a new massively multi-player online game (MMOG). Carly pioneered the first Online Community Services department in the MMOG industry while working for Electronic Arts, which served as the model that many other companies have since adopted. Carly enjoys contributing to the advancement of the game development craft by speaking publicly and contributing to books, and can be seen in *Swords and Circuitry: A Designer's Guide to Computer Role Playing Games* and *Community Building on the Web*. One of her first gigs in the industry was as a freelance voice actor and sound effects producer, and you can still hear her screaming as the female player character in QUAKE II. **Lecture: MASTER CAT JUGGLING IN JUST ONE HOUR!: MANAGING DESIGNERS** *See page 79*

Jos Stam
Jos Stam is one of Alias|Wavefront's Research Scientists. His main interests are in the areas of natural phenomena modeling such as smoke and fire, illumination models, physics-based animation and subdivision surfaces. In general, he is interested in any research that involves math and cool pictures. Jos was born in the Netherlands and educated in Geneva, Switzerland where he studied pure mathematics. After moving to Canada, Jos received a PhD in computer science from the University of Toronto in 1995. In 1997, Jos joined Alias|Wavefront after spending two years in Europe in various research labs. Throughout his studies and during his career with Alias|Wavefront Jos has published several papers at SIGGRAPH and elsewhere that cover many areas of computer graphics. **Lecture: REAL-TIME FLUID DYNAMICS FOR GAMES** *See page 99*

Paul Steed
Paul Steed is the author of two books on modeling and animation: *Modeling A Character In Max*, published by Wordware Publishing and *Animating Real-Time Game Characters* by Charles River Media. Paul has been making computer games for the past 11 years at five different companies. Most noted for his work at id Software, Steed (as likes to be referred to) started his own company in November of 2001 to do freelance work and a variety of real-time applications. He enjoys movies, talking about his work, and of course talking about himself. He has been a speaker at the Conference since 1996 and is on the *Game Developer* magazine advisory board. **Tutorial: (103) BUILT TO MOVE IN MAX 5** *See page 29* **Panel: A REVIEW OF CURRENT AND FUTURE ANIMATION ISSUES** *See page 106*

Andrew Stern
Andrew Stern is a designer and programmer of the interactive characters Oogz, Catz and Babyz from PF.Magic in San Francisco. Along with his fellow creators Adam Frank, Ben Resner and Rob Fulop, he has presented these projects at a variety of conferences including the Game Developers Conference 1997 and 1998, Digital Arts and Culture, SIGGRAPH 2000 Art Gallery, AAAI Narrative Intelligence Symposium, Autonomous Agents, and Intelligent User Interfaces. Babyz won a Silver Invision 2000 award for Best Overall Design for CDRom. Catz received a Design Distinction in the first annual *I.D. Magazine* Interactive Media Review, and along with Oogz and Babyz was part of the American Museum of Moving Image's Computer Space exhibit in New York. The projects have been written about in *The New York Times*, *Time Magazine*, *Wired* and *AI Magazine*. He holds a B.S. in computer engineering from Carnegie Mellon University and a masters degree in computer science from the University of Southern California. **Lecture: TOWARDS BUILDING A FULLY-REALIZED INTERACTIVE DRAMA** *See page 63*

Robert Stevenson
Robert Stevenson is the acting president of iROCK Games and has been developing entertainment, educational, and visualization software for over nine years. Prior to joining iROCK as the head of development, Robert held key roles in the creation of eight titles with developer and publisher Interactive Magic, including work on their online gaming service. Before starting with Interactive Magic, Robert led the development of three edutainment projects with Rainbow Media and the North Carolina Intellimedia Initiative, the latter of which he is credited with helping form. Outside of iROCK, Robert is an advisor to several software companies and is active in the game development community. He has completed advanced studies in computer science and holds a bachelors of design from North Carolina State University. **Lecture: MANAGING DURING TOUGH TIMES** *See page 78*

Lex Story
Lex Story is a modeler at heart and passionate about all things modeling related. He was a former artist for companies such as Activision and Virtual World Entertainment. He is currently working for FASA studios within Microsoft Games Studios located in Redmond, WA as well as working on a project that requires substantial amounts of organic modeling. **Lecture: CREATING AESTHETIC 3D ORGANIC VOLUMES AND USING THE RIGHT TOOLS FOR THE PROJECT** *See page 107*

Jonathan Strause
Jonathan Strause is the managing director of The Bellwether Group and has over 12 years experience in private equity, strategic consulting, and corporate finance. He manages the day-to-day operations and capital services activities of TBG.

Prior to founding The Bellwether Group, Jonathan was co-founder and CEO of Tsunami Technology Holdings, a B2B E-commerce incubator. Tsunami was subsequently acquired in the spring of 2000 by eColony - the Internet Capital Group's $125 million technology incubator and early stage venture

fund where Jonathan served as a Managing Director. While at eColony Jonathan sat on the acquisition committee, developed the firm's investment strategy, managed the operations and alliances, and led several investment transactions.

Before forming Tsunami, Jonathan was an associate principal at McKinsey & Company in the firm's Los Angeles office. Jonathan was a leader in McKinsey's e-commerce and technology consulting practices and had extensive experience in developing strategies for leading venture capitalists, private

equity firms, technology enablers, vertical marketplaces, and incumbent industrial companies. Jonathan also had significant experience helping industrial and technology companies launch new ventures in the U.S. and global emerging markets including Southeast Asia, India, China, Latin America and the Caspian Region.

Jonathan has his MBA from the Wharton School at the University of Pennsylvania and a bachelor of arts from Duke University. **Panel: A REVIEW OF FUNDING, MODELS FOR THE INDEPENDENT DEVELOPER AND THEIR IMPLICATIONS** *See page 48*

Rita Street
Rita Street is the publisher and editor of *Animation Magazine*. In addition to extensive knowledge of 2D and 3D animation in television and films, she actively covers aspects of animation and art design for games. Rita has written for such trade pubs as *Daily Variety* and *Cinefex*, has served as the festival program director for the World Animation Celebration, is the founder of Women In Animation and the author of *Computer Animation: A Whole New World*. **Panel: CRACK CHARACTER CREATION: THE MAD PUFFER FISH PANEL** *See page 107*

David Stripinis
David Stripinis has served as director of animation for Factor 5, an independent developer in northern California, since 1999. Previously working in the worlds of film and television, David has been working with Maya since the beta of

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version 1.0. Most recently working on the critically-acclaimed STAR WARS: ROGUE SQUADRON 2: ROGUE LEADER, he is currently hard at work on an as-yet unannounced project. A frequent contributor to *Game Developer* magazine as well as speaking at multiple conferences, his first book on MEL scripting is due from Charles River Media in Spring 2003. **Tutorial: (204) CREATING COMPLEX CHARACTER RIGS IN MAYA FOR GAMES** *See page 32* **Lecture: RELINQUISHING CONTROL: GIVING PROGRAMMERS CONTRDL OF YOUR ANIMATIDN ASSETS** *See page 111*

Marc Szafran

Marc Szafran joined the Entertainment Software Rating Board 1999 and was named acting executive director in March 2002. In his current capacity, Marc directs all ESRB operations and divisions, including the ESRB Rating Division, which oversees the assignment of ratings and content descriptors for virtually every interactive entertainment software product sold today. Marc also serves as senior vice president and general counsel of the ESRB, managing the organization's day-to-day operations.

Prior to joining ESRB, Marc was assistant general counsel at the New York City Department of Information Technology and Telecommunications where he was responsible for telecommunications and technology franchising and business and legal telecommunications policy for the City.

Marc testified on Internet privacy issues before the House Judiciary Subcommittee on Courts & IP in March 2000, and published *Contracts Formed in Cyberspace: A Day of Reckoning for the Statute of Frauds* in the Cardozo Arts and Entertainment Law Journal in 1996. **Panel: FREEDOM OF EXPRESSION: DEALING WITH THE THREAT OF CENSORSHIP** *See page 68* **Roundtable: GAME RATINGS** *See page 69*

Won Il Sue

Won Il Sue is director of business development at Nexon Corporation. Won has been involved with Nexon since 1996, when he first started working there part time as a college student. He officially joined Nexon full time in 2000 and with his background in international business, he currently heads the business development team at Nexon. **Panel: KOREA, WHERE MULTIPLAYER GAMING IS KING** *See page 46*

John Szeder

John Szeder currently runs a small game development company called Seismic Studios, Inc. He primarily develops games for wireless devices, and has done original title development for some companies and ports for others. In addition, he is building up a small collection of self published PDA games for his iPaq when he has nothing else to do. **Group Gathering: INDIE DEVELOPERS GROUP GATHERING** *See page 69*

Tommy Tallarico

Tommy Tallarico is the most successful and accomplished video game composer in history. His music has been heard by hundreds of millions of people all over the world on mediums such as video games, television, motion pictures, radio, soundtracks, and even on floats in the New Year's Day Rose Bowl parade in Pasadena. Some of Tommy's top titles include: EARTHWORM JIM 1 & 2, DISNEY'S ALADDIN, COOL SPOT, THE TERMINATOR, MADDEN FOOTBALL, PRINCE OF PERSIA THE TEST DRIVE SERIES, MDK, TOMORROW NEVER DIES, TONY HAWK SKATEBOARDING, SPIDER-MAN, PAC-MAN WORLD, KNOCKOUT KINGS and the BLITZ, UNREAL and TIME CRISIS series. Upcoming titles include the highly anticipated ULREAL 2, TWISTED METAL, METROID PRIME, MAXIMO and CASPER. Tommy has been writing music for video games for over 10 years. Founded in 1994, Tommy Tallarico Studios, Inc. is the industry's largest multimedia post-production audio house on the planet having produced over 30 titles in 2000 alone. Tommy and his team have won over 20 industry awards for best video game soundtrack and have worked on over 175 games totaling over 50 million units sold and grossing over 2 billion dollars in revenue! **Panel: ORCHESTRAL PANEL** *See page 39*

Natasha Tatarchuk

Natasha Tatarchuk is a software engineer working in the 3D Application Research Group at ATI Research, Inc. where she is the programming lead for the RenderMonkey IDE project. She has been in the graphics industry for over 6 years, working on 3D modeling applications and scientific visualization prior to her employment at ATI. **Sponsored Session: BEGINNING SHADER PROGRAMMING WITH RENDERMONKEY** *See page 88* **Sponsored Session: HLSL PROGRAMMING WITH RENDERMONKEY** *See page 93*

Matthew Tateishi

Matthew Tateishi is currently working for Nihilistic Software as a level designer on the forthcoming multiplatform title STARCRAFT: GHOST. Prior to that, he worked at LucasArts and LucasLearning on titles INDIANA JONES AND THE INFINITE (INFERNAL???) MACHINE as a level designer on such titles as DARK FORCES, SHADOWS OF THE EMPIRE, DARK FORCES II: JEDI KNIGHT, DROIDWORKS, and NEW LEGENDS. Matt believes his degree in architecture to be more applicable to the game industry than to the actual field of architecture. **Panel: ON ALL LEVELS** *See page 60*

Chris Taylor

Chris Taylor started his career in the video games business 15 years ago. His first games included HARDBALL II, 4D BOXING and TRIPLE PLAY for Electronic Arts. Leaving Canada, Chris moved to Seattle and joined Humongous Entertainment and created TOTAL ANNIHILATION (under the Cavedog label). After completing work on the expansion to TA, THE CORE CONTINGENCY, Chris left to start his own company, Gas Powered Games in May of 1998. Today, after completing DUNGEON SIEGE with a team of about 30 people, GPG is now busy working on a follow-up to DUNGEON SIEGE and a new RTS title. **Lecture: LESSONS LEARNED ON DUNGEON SIEGE AND OTHER RANDOM STUFF** *See page 78*

Jesse Taylor

See www.gdconf.com for bio. **Panel: COMMUNICATING WITH THE MOTHERSHIP: INTERFACING BETWEEN AMERICAN SUBSIDIARIES AND THEIR JAPANESE PARENTS** *See page 77*

Steve Taylor

Steve Taylor has developed for numerous platforms and been involved in various levels of production from peon programmer to executive management and everything in between in his eight years in the industry. He has been on the faculty of the Game Developers Conference for several years. Steve is president of Wahoo Studios, an independent game development company. **Lecture: PRODUCING PROGRAMMERS AND PROGRAMMER TEAMS** *See page 81*

Paul Thelen

Paul Thelen, Big Fish Games founder and CEO, has an electrical engineering degree from University of Washington and an MBA from Stanford University. He has over 12 years experience working in high tech. Prior to founding Big Fish Games he was Director of Consumer Marketing for RealArcade. Big Fish Games specializes in casual online and downloadable games for the 'young at heart' who approach computer gaming as a light-hearted diversion and hobby, rather than a place to help steroid-pumped warriors slaughter hordes of attacking aliens. **Panel: PRODUCT SUCCESS IN ONLINE SOFTWARE DISTRIBUTION** *See page 47*

Steve Theodore

Steve Theodore fell in love with computer animation in the DARK AGES, in more ways than one. Steve dropped out of a PhD program in ancient history to start rendering scenes by typing text commands into the Brown University mainframe. He spent the early 90's doing animations for a variety of commercial and television projects. In 1995 he joined FASA Interactive in Chicago, where he created mechs and environments for MechCommander. Two years later he moved to Valve, where he worked on HALF-LIFE, TEAM FORTRESS CLASSIC, TEAM FORTRESS 2 and COUNTERSTRIKE. He is currently the artist in residence at Rad Game Tools. **Lecture: EXTREME CHARACTER RIGGING: WHEN LESS IS MORE** *See page 108* **Panel: STATE OF THE ART: BUILDING 3D ENVIRONMENTS AND MODELS REVIEW PANEL** *See page 111*

James Thoma

James O. Thoma is a partner in the entertainment practice group of Akin, Gump, Strauss, Hauer & Feld, L.L.P. in Los Angeles. James is principally engaged in the media finance area, concentrating in the financing of motion pictures, television programs and computer/electronic games. In addition to his representations in the motion picture and television areas, James has represented lending institutions in several of the original electronic game software loans and has helped develop economic models for the financing of electronic games. He has authored an article on financing software distribution and development. James has extensive experience in negotiating and documenting interparty agreements and completion guarantees in the motion picture, television and electronic game areas. James received his B.A. summa cum laude in 1977 and his J.D. in 1980 from the University of Texas. He is a member of the California and Texas Bars. **Lecture: COMPLETION BONDING FOR GAME DEVELOPMENT PROJECTS** *See page 44*

James Thrush

James Thrush is owner and development lead of Super X Studios, an independent game developer whose breakthrough title FAR GATE won the 2000 Independent Games Festival Audience Award. In addition to developing games, James teaches game development at the Academy of Game Entertainment Technology in Hollywood, California. **Roundtable: DEVELOPER FOCUSED CURRICULUM FEEDBACK** *See page 67*

Rob Titus

Rob Titus is the character lead at Naughty Dog Inc and has been with the company since 1997. He has modeled, rigged, textured and animated characters, in-game objects and built backgrounds on CRASH 2, CRASH 3, CRASH TEAM RACING and JAK AND DAXTER. Currently working on the sequel to JAK AND DAXTER, Rob splits his time between modeling, animation and fixing problems that come up with the insanely complex Naughty Dog object pipeline. **Panel: A REVIEW OF CURRENT AND FUTURE ANIMATION ISSUES** *See page 106*

Neil Trevett

Neil Trevett has spent 19 years in the 3D graphics industry. As vice president at 3Dlabs he has been at the forefront of the silicon revolution bringing 3D to the PC. Neil is also active in creating graphics standards—he is currently president of both the Web3D Consortium and the Khronos Group and has also been helping to drive the OpenGL 2.0 initiative. In the Khronos Group, Neil is chairman of the OpenGL ES initiative. **Sponsored Session: OPENGL ES: BRINGING 3D GAMING TO CELL PHONES** *See page 96*

Ken Troop

See www.gdconf.com for bio. **Lecture: EPISODIC CONTENT: HERE, NOW & NEXT MONTH TOO** *See page 57*

Fumito Ueda

Lecture: GAME DESIGN METHODS OF ICO *See page 58*

Feargus Urquhart

Feargus started in the games industry in 1991 as a part-time playtester for Interplay. After testing games for two summers, he was hired on full-time as an assistant producer. His first title, ROCK N ROLL RACING for the SEGA Genesis, was published in late 1994. Over the next two years, he produced titles for the SNES, 3DO, SEGA 32X, PC and MAC. In 1996, he was put in charge of Interplay's newly created RPG Division, which was officially launched two years later as Black Isle Studios. Since then, he has overseen and participated in the internal development of such titles as FALLOUT, TORMENT, and ICEWIND DALE. He has also managed the external development of the BALDUR'S GATE products for PC and the PS2, while being credited as one of the co-designers of the original game concept for NEVERWINTER NIGHTS. As the president of Black Isle, he currently oversees an internal development staff of fifty, while managing three external development houses creating conversions and original titles. **Roundtable: RESOURCE MANAGEMENT/SCHEDULING BEST PRACTICES** *See page 71*

Raymond Usher

Raymond Usher has worked in the games industry for over 10 years. Raymond's credits include audio programmer on the GRAND THEFT AUTO series including the latest release GRAND THEFT AUTO: VICE CITY, WILD METAL COUNTRY/ WILD METAL and TANKTICS, as well as musician for Walker, and musician and sound designer for a number of Lemmings titles. He now holds the position of audio director at Real Time Worlds Ltd. **Panel: HOW TO MIX DISCRETE SURROUND SOUND FOR PLAYSTATION 2** *See page 38*

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Jeferson Valadares
Jeferson Valadares is creative director and co-founder of Jynx Playware, a 12-person, 3-year-old game development company. At Jynx, he's also lead game designer and lead AI programmer for FutSim, a massively multiplayer online soccer management game. Active member of the game development community, Jeferson spoke at last year's GDC, founded the Brazilian IGDA Chapter and is a member of the IGDA Online Games Committee. He's also on the organizing committee of the Brazilian Workshop on Games and Digital Entertainment (WJogos) and on the technical consultative advisory board of the Game Design and Planning Graduation Course at the Universidade Anhembi Morumbi, Brazil. A BS and MSc graduate, he does research on artificial intelligence applied to computer games. Amazingly, he STILL manages to come up with time for his favorite non-gaming related activity: reading. **Panel: Finoings of IGDA's 2002/2003 Online Games Whitepaper** *See page 68*

Glen Van Datta
Glen Van Datta graduated from Washington State University in 1985 with a BSEE, GD CDUGS! Glen worked at the High Technology Center where he researched advanced techniques in image processing, 3D graphics and embedded parallel processing. He also worked on the Boeing 777 Primary Flight Computer system, an integral part of the fly by wire aircraft. Glen co-founded Resonant Reality in 1995, which was later re-named RTIME. RTIME was primarily known for work its DARPA contracts and later its commercial real-time Internet SDK. In August 2000, Sony Computer Entertainment America (SCEA) acquired RTIME and Glen now heads the SCEA Online Technology Group to produce the SCE-RT SDK. **Lecture: SOCOM: Bringing a Console Game Online** *See page 62*

Jack van Ryswyck
Jack van Ryswyck has a MSc in mathematics from Eindhoven University of Technology in the Netherlands, and a MSc in computer science from the University of Alberta. Both theses involved the abstract board game HEX, which still is his favourite hobby project. In his non-spare time he is currently working on a PhD at the University of Alberta, designing an Artificial Intelligence architecture for sports games in collaboration with Electronic Arts Canada. Jack's main interest is learning in games, both abstract board games and commercial games. **Lecture: Sandbox Strategy Learning in Sports Games** *See page 100*

Jim Van Verth
Jim Van Verth has been working in the game industry for over six years, concentrating on 3D graphics and simulation. Most of that time has been at Red Storm Entertainment, where he was lead engineer on such projects as Tom Clancy's Politika and Force 21. At GDC, he has been a co-author on three papers and has presented his Math for Programmers talk for the past three years. Jim is currently co-lead on an unannounced console/PC project, and is writing a book to be published by Morgan Kaufmann in 2003. **Tutorial: (206) Essential Matnematics for Games Programmers** *See page 32*

Joseph R. Varet
Joseph Varet directs sales, marketing, and business development for The Groove Alliance, Inc. The Groove Alliance is a leading publisher of branded advergames and original web and CD-RDM games, including Real Pool and Tank Wars, the web's first 3D games. The company's proprietary 3D Groove videogame broadcasting platform enables narrowband broadcasting of console-quality 3D videogames to any Windows or MacDS Web browser, with no 3D hardware required. Founded in January 1999, The Groove Alliance is headquartered in Hollywood, California.

3D Groove customers include AtomShockwave, AT&T, Cartoon Network, Infogrames, Intel, Mars/M&Ms, Microsoft, Nestle, Nickelodeon, Nick Jr., Procter & Gamble, RealNetworks, Tribal DDB, Warner Bros, and Yaya. Downloaded more than forty million times to date, 3D Groove was recognized by *Newsweek Magazine* as one of five technologies that would change consumers' lives in 2001, and won the 2001 Webby Award for Best Online Games.

Previously Joseph was VP of corporate development for KPE, a digital agency for the media and entertainment industry, where he directed strategic planning and partnerships, and co-managed KPE Ventures. Prior to KPE, Joesph worked in Fox Television's business development group. **Panel: Proven Strategies for Self-Publishing on the Internet: Real-Life Stories of What Works and What Doesn't** *See page 48*

Amitabh Varshney
Amitabh Varshney is an associate professor in the department of computer science at the University of Maryland. His research interests are in interactive computer graphics, scientific visualization, molecular graphics, and CAD. Amitabh has worked on several aspects of level-of-detail simplifications including topology-preserving and topology-reducing simplifications, view-dependent simplifications, and parallelization of simplification computation. Amitabh received his PhD and masters degrees from the University of North Carolina at Chapel Hill in 1994 and 1991, respectively. He received his bachelor's degree in computer science from the Indian Institute of Technology at Delhi in 1989. He has also consulted and collaborated with IBM, Daimler Chrysler, General Dynamics, Honda, and Reuters. Varshney received a NSF CAREER Award in 1995. **Tutorial: (209) Level of Detail Management for 3D Games** *See page 33*

John Vechey
John Vechey, biz guy and general roustabout of Popcap.com, hails from WDN where he worked on WDNswap and helped create game specific sites. Along with Brian Fiete, he was responsible for the cult online gaming hit ARC, still available at arc.won.net. **Panel: Casual Games Panel** *See page 55* **Panel: Prooduct Success in Online Software Distribution** *See page 47* **Panel: Proven Strategies for Self-Publishing on the Internet: Real-Life Stories of What Works and What Doesn't** *See page 48*

John Versluis
John Versluis has been involved in various aspects of art and technology in the game industry for the past eight years. In that time he has created cinematic and real-time models and animation for a number of games on a variety of different platforms. **Lecture: Hardware Shaders for the Artist** *See page 109* **Panel: Effects: State-of-the-Art Techniques** *See page 108*

Alex Vlachos
Alex Vlachos is a senior software engineer in the 3D Application Research Group at ATI where he has worked since 1998 focusing on 3D engine development as the lead programmer for ATI's Demo Team. He developed N-Patches (a curved surface representation introduced in Microsoft's DirectX 8) also known as PN Triangles and TRUFORM. Alex has published in *Game Programming Gems 1, 2, & 3, ACM Symposium on Interactive 3D Graphics (I3DG), and ShaderX*. He has presented at Microsoft Meltdown Seattle & UK, I3DG, previous GDC's, and GDC Europe. Alex is a graduate of Boston University. **Lecture: Designing a Portable Shader Library for Today's and Tomorrow's API's** *See page 90* **Tutorial: (104) Aovanced Visual Effects with Direct 3D** *See page 29*

Rich Vogel
Rich has been doing game development for 12 years. Rich has worked on console, PC, and online games. He was the producer of Meridian 59 and Ultima Online. He helped launch and run the service for both online games. He is currently director of development at Sony Online Entertainment. He is overseeing the development of Star Wars Galaxies. He speaks frequently on issues of online world design, online development process, and online community management. **Tutorial: (108) Running Massively Multiplayer Games** *See page 30* **Lecture: Small Worlds: Competitive and Cooperative Structures in Online Worlds** *See page 62* **Lecture: How to Manage a Large Scale Online Gaming Community** *See page 78* **Sponsored Session: How to Build a Galaxy Online** *See page 78*

Gregor vom Scheidt
Gregor vom Scheidt is the mastermind behind NXN Software. He developed the idea for an asset management solution for computer game development while leading a game project in 1995-96. NXN's award-winning systems now rank as primary applications for asset management in the digital entertainment and computer graphics industries. Gregor vom Scheidt studied physics in Munich, Germany, and holds an MSc in computer science from King's College, London, UK. **Sponsored Session: Asset Management: An Essential Part of Every Prooduction** *See page 76*

Chris Vrenna
Chris Vrenna is a Grammy winning artist and founding member of NINE INCH NAILS. Vrenna's distinctive styles are featured on CDs including Downward Spiral, Broken, Pretty Hate Machine and Fixed, as well as his work as co-writer/artist on the Grammy nominated "Perfect Drug" for the Lost Highway soundtrack.

Chris contributed additional production and remixed U2's hugely successful "Elevation Remix" for the *Tomb Raider* soundtrack, Nelly Furtado "Turn Dff the Light", Weezer "Hash Pipe", The Calling "Nothing's Changed", LIVE "Like a Soldier", Rob Zombie "Demon Speedway", Xzibit "X" featuring Snoop Doog as well as P.D.D. "Set It Dff" for the *Scorpion King* soundtrack as well as Drowing Pool "Bodies" and Gave Rossdale (of BUSH) song "Adrenalin" for the XXX soundtrack. He's currently remixing Adema "Freaking Dut" and P.D.D. "Messenjah".

Chris's collaborative efforts are found on Smashing Pumpkins' Grammy winning "The End is the Beginning is the End", Marilyn Manson's Antichrist Superstar and Portrait of an American Family CDs, Hole's Celebrity Skin CD, The Wallflowers "Letters From the Wasteland" and Green Day's "Brain Stew" for the *Godzilla* soundtrack. **Panel: A Review of Current and Future Animation Issues** *See page 37*

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Oliver Wade
Dliver Wade currently the animation director for Insomniac Games. Oliver has worked on all 3 SPYRO titles and RATCHET AND CLANK. He's designed all of the characters for SPYRO 2 and 3. Previously, he worked as animation director for Disney Interactive and as an animator for Electronic Arts in their Advanced Technology division. Dliver's traditional 2D animation experience includes numerous television projects, commercials, short films and a three year stint animating for Don Bluth Animation in Los Angeles. **Panel: A REVIEW OF CURRENT AND FUTURE ANIMATION ISSUES** *See page 106*

Liz Wakefield
Liz Wakefield is the operations manager for the IGDA, working to build a unified game development community and provide a common voice for the development industry. Liz works with game developers around the world to establish and support local IGDA Chapters, in addition to coordinating the San Francisco Chapter of the IGDA. **Group Gathering: CHAPTER COORDINATORS GROUP GATHERING** *See page 66*

Jack Wall
Jack Wall has built a prestigious career upon strong production values. Jack cut his teeth working at Synchro Sound Studios in Boston, then owned by The Cars, and Skyline Studios NYC, the home of renowned producer Nile Rodgers, where he engineered and produced records for John Cale, David Byrne, Dr. John and Patti Smith. Jack served as engineer, producer and arranger with John Cale, founding member of the seminal and highly influential band, The Velvet Underground. Together they produced film soundtracks for *Basquiat*, *Somewhere In the City*, *Rhinoceros Hunting in Budapest*, and *House of America*. Jack also engineered and mixed John Cale's critically acclaimed album "Walking on Locusts," and produced a live recording of John Cale performing with the Hudson Valley Philharmonic Orchestra in NYC.

Jack has continued to exercise his ability to bring exactly the right combination of tempo and energy, as well as his unique producing, arranging and engineering skill-set, to film and videogame soundtracks, most notably for the attention-grabbing independent film *War Zone* and the award-winning MYST III: EXILE which has become one of the most successful and talked about soundtracks in videogame industry. He composed and conducted a full symphony orchestra and master chorale for the game. The soundtrack was nominated by the Academy of Interactive Arts and Sciences in 2002 for "Outstanding Achievement in Musical Composition" and received "2002 Game of the Year Soundtrack Award" from the readers of *Game Industry News*.

Jack Wall is senior director and co-founder of The Game Audio Network Guild (G.A.N.G.), a non-profit organization established to promote excellence in interactive music and sound by providing information, instruction, resources, guidance and enlightenment not only to its members, but to publishers, developers and listeners throughout the world. **Panel: ORCHESTRAL PANEL** *See page 39*

Margaret Wallace
Margaret Wallace is the co-founder and chief executive officer of Skunk Studios. She has been on the forefront of interactive entertainment as creator, designer, producer, and innovator. She has long evangelized that online software distribution holds tremendous opportunity for new and traditional game players in the ever-evolving games publishing space. Margarent's extensive game development experience culminated with the establishment of Skunk Studios, a place dedicated to making deep, original, and accessible games that everyone can play and enjoy. **Panel: PRODUCT SUCCESS IN ONLINE SOFTWARE DISTRIBUTION** *See page 47*

Gordon Walton
Gordon Walton has been authoring games and managing game development since 1977. Gordon has personally developed over two dozen games and managed the development of hundreds of games. He has spoken at every Game Developers Conference since they began on topics ranging from game design to programming to business. He has had his own development company (twice), been development manager for Three-Sixty Pacific and Konami America, VP of development for GameTek, Sr. VP and general manager of Kesmai Studios, VP online services for Origin Systems managing ULTIMA ONLINE, and is current VP and executive producer of THE SIMS ONLINE at Maxis. **Lecture: 10 GREAT REASONS YOU DON'T WANT TO MAKE A MASSIVELY MULTIPLAYER GAME!** *See page 49* **Roundtable: WHAT ABOUT THE SERVICE? THE NEXT STEP BEYOND DESIGN AND DEVELOPMENT FOR ONLINE GAMES** *See page 82* **Tutorial: (108) RUNNING MASSIVELY MULTIPLAYER GAMES** *See page 30*

Ben Watson
Dr. Benjamin Watson is an assistant professor at the computer science department of Northwestern University in Evanston, Illinois, USA. There he leads the 3DLab, which works toward enabling new levels of realistic complexity in interactive computer graphics. His specific research interests are level of detail, visual fidelity, procedural modeling and three dimensional interaction. His applied interests include visualization for finance and security, psychological applications, education and computer games. Ben earned his Ph.D. at Georgia Tech's GVU Center, co-chaired the Graphics Interface 2001 conference, and is co-chair of the IEEE VR 2004 conference. **Tutorial: (209) LEVEL OF DETAIL MANAGEMENT FOR 3D GAMES** *See page 33*

Dave Weinstein
Dave Weinstein entered the industry at White Wolf Productions working on EMPIRE II: THE ART OF WAR after various and sundry jobs, including learning far more about libraries than any non-librarian should know. After a stint at Kesmai Studios, he joined Red Storm Entertainment, where he has been since 1997. His work there has included the design and development of the network libraries Red Storm uses on the PC, Xbox, PS2 and Gameboy Advanced platforms and core tools and libraries for the Gameboy Advanced, in addition to work as part of the game development teams. **Roundtable: GAME EDITING TOOLS** *See page 77* **Roundtable: GAME ARCHITECTURE** *See page 92*

Mookie Weisbrod
Mookie Weisbrod studied at the Ringling School of Art and Design where he received his Bachelors in Fine Arts with a specialization in computer animation. After completing his studies, Mookie began his career as an animator at Industrial Light + Magic a division of Lucas Digital, where he worked on such projects as *Star Wars Episode 2*, *Men in Black 2*, and *The Green Giant* commercials. Mookie currently works at Inevitable Entertainment where he uses his talent and experience to bring fantastic creatures to life in Inevitable's latest project. **Lecture: CHARACTER RIGGING AND ANIMATION** *See page 107*

John Welch
John Welch, vice president of games and product development at AtomShockwave Corp., is responsible for acquiring, developing and promoting interactive games and entertainment for the Shockwave.com brand. John is driven by the purpose of raising online gaming to greater mass-market appeal and commercial success. He has been with Shockwave.com since 1999. Prior to Shockwave.com, John spent time at Sega and with a consulting company that he co-founded. He holds bachelor's and masters degrees in computer science, the former from MIT and the latter from the University of Massachusetts. **Panel: FINDINGS OF IGDA'S 2002/2003 ONLINE GAMES WHITEPAPER** *See page 68*

Evan Wells
See www.gdconf.com for bio. **Panel: ON ALL LEVELS** *See page 60*

David Wessman
David Wessman is currently a lead game designer at Check Six Studios in Venice,CA. David has been a game designer for over 10 years, creating successful combat action games for the PC and console. It has been his great good fortune to work with some of the best teams in the industry. His design credits include BLOOD WAKE, a fast-action boat combat game developed by Stormfront Studios, and published by Microsoft for the Xbox, and the entire X-WING / TIE FIGHTER series of STAR WARS space combat simulator games developed by Totally Games and published by LucasArts. He is most proud of TIE FIGHTER and the recognition it has received as "the greatest computer game of all time." (Well, for a little while anyway.) In addition to working primarily on combat action titles, David is also an avid strategy gamer. He is the developer of *Command* magazine's final issue wargame, *When Dragons Fight: If China Invades Taiwan*, and *Strategy & Tactics* magazine's *War of 1812*. **Roundtable: GAME DESIGNERS AND DEVELOPMENT TEAMS** *See page 58*

Darrin West
Darrin West is a senior engineer for Electronic Arts (Maxis Studio), leading the game engine team for THE SIMS ONLINE. He holds a MSc in computer science from University of Calgary, and used his thesis project as the foundation of Sim++, a time warp based parallel simulation system. He later architected Tempo/Thema, a second generation time warp system which executed war games for the Naval Research Labs on a 128 processor shared memory supercomputer. He was a key contributor to the DARPA and DoD massive scale STDW and HLA simulation projects. He has worked in large scale distributed systems for 15 years, and in the MMP game industry for the past two years. **Lecture: SCALING THE SOFTWARE DEVELOPMENT PROCESS: LESSONS LEARNED FROM THE SIMS ONLINE** *See page 100*

J. White
J. White has been creating sound and music for video games for twelve years. In that time he's worked on most platforms including the PC and consoles from the 16-bit revolution on. He's contributed to an extensive list of titles that includes STAR WARS GALAXIES, STAR WARS DBI-WAN, ESCAPE FROM MONKEY ISLAND, MECHWARRIOR III, FALCON 4.0, STAR TREK: BIRTH OF THE FEDERATION and STAR TREK: A FINAL UNITY. When not composing beat-oriented ambient music at home, he spends his time as a senior sound designer at LucasArts Entertainment. **Lecture: WHAT PRODUCERS SHOULD KNOW ABOUT AUDIO** *See page 82*

Stephen White
Stephen White is the programming director of Naughty Dog, and was instrumental in the development of Naughty Dog's extremely successful CRASH BANDICOOT games (over 22 million copies sold) as well as Naughty Dog's latest hit release, JAK AND DAXTER: THE PRECURSOR LEGACY for the PlayStation 2. Stephen is an industry veteran, with over 15 years of published programming experience on a wide variety of platforms, and has written multi-award winning projects such as DELUXE PAINT ST and BRILLIANCE. Stephen was honored with a nomination for Excellence in Programming at the Game Developer Choice Awards at GDC 2002, and has been a speaker at GDC as well as other industry events. Stephen is currently working on Naughty Dog's next epic title, which is being developed for the PlayStation 2. **Lecture: THE TECHNOLOGY OF JAK & DAXTER** *See page 102*

Guy Whitmore
Guy Whitmore is co-founder and creative director for Music Design Network, LLC. Guy has composed numerous game scores since 1994, as well as writing for theater, film, and commercial media. He has garnered many accolades, including a 1996 nomination for Best Soundtrack from the Academy of Interactive Arts & Sciences. He has contributed articles on game audio to several publications, including *Game Developer* magazine and an upcoming book on DirectX Audio. He has spoken at past GDCs and several other panels and lectures, including lecturing to students at Digi-Pen and at IMX (Interactive Music Expo). Among his peers, Guy is considered the leading composer and innovator of adaptive game scores. *Computer Games* magazine called his score for NO ONE LIVES FOREVER the best interactive music seen in an action game! **Lecture: DESIGN WITH MUSIC IN MIND: INTEGRATING AN IMMERSIVE GAME SCORE WITH YOUR GAME DESIGN** *See page 37*

Jason Wiener
Jason Wiener is a 3D artist and instructor with published credits in the print industry and extensive work in games as a character designer and 3D production artist. Jason currently teaches 3D modeling, texturing, and animation at the Art Institute of California at San Francisco (since 2001) and is the creator of the animated short "Chance Encounter". He ran the Character Artist Group Gathering at GDC 2002 but promises there will be no bananas this year. **Group Gathering: ENVIRONMENT ARTISTS GROUP GATHERING** *See page 67*

speaker bios

Jana Wilcoxen
Jana Wilcoxen is a freelance consultant, movement artist, and Certified Laban Movement Analyst who utilizes LMA in the fields of game production, movement education and performance. Jana directed motion capture director for Baseball 3D and Cart: Precision Racing, and participated in the design and enhancement of motion capture processing tools with Microsoft Research Graphics Group, and the resulting paper, Verbs and Adverbs. For the past two years, she has been living in Slovenia and working as a level designer for Hitchcock: The Final Cut and the motion consultant Mistmare, Ring II for Arxel Tribe. **Tutorial: (202) Making Characters Move: Expressive Character Acting through Laban Movement Analysis** *See page 31*

Chris Williams
See www gdconf.com for bio. **Panel: State of the Art: Building 3D Environments and Models Review Panel** *See page 111*

Kyle Wilson
Kyle Wilson has five years of experience in game development and worked as a software engineer on iF/A-18 Carrier Strike Fighter, realMyst, and Savage Skies. Before becoming a game developer, Kyle got his masters degree in computer graphics from UNC Chapel Hill. Since getting out of grad school he's had the opportunity to work in most aspects of game engine development, particularly 3D graphics, tools, and core engine architecture. **Roundtable: Game Object Structure: Bringing It All Together** *See page 92*

Matthias Wloka
Matthias Wloka works in the technical developer relations group at Nvidia. There he gets to collaborate with game-developers on performance-optimizing their game. He is also always tinkering with the latest graphics hardware to explore the limits of interactive real-time rendering. Before joining Nvidia, Matthias was a game developer himself, working for GameFX/THQ Inc. He received his MSc in computer science from Brown University in 1990, and his BSc from Christian Albrechts University in Kiel, Germany in 1987. **Sponsored Session: Graphics Pipeline Performance** *See page 93* **Tutorial: Aovanced Visual Effects with Direct 3D** *See page 29*

Steve Woodcock
Steven Woodcock's background in game AI comes from some 18 years of ballistic missile defense work building massive real-time war-games and simulators. He maintains a web page dedicated to game AI at www.gameai.com, and is the author of various papers on the subject. He now does a variety of contract work and has contributed to and been technical editor for several books in the field including the *Game Programming Gems* and *AI Game Programming Wisdom* series. Steve lives in gorgeous Colorado Springs with his lovely wyfe Colleen and an indeterminate number of pet ferrets. He can be reached at ferretman@gameai.com. **Roundtable: AI in Computer Games Rounotables** *See page 86*

Will Wright
Will Wright, Maxis' chief designer, co-founded Maxis with Jeff Braun in 1987. Will began working on what would become SimCity-The City Simulator in 1985. Using a complex technique, he found a way to bring realistic simulations to desktop PCs. Previously simulations of this sort were only available to the military, scientists and academicians. But now, using an easy to use graphic interface, the world of simulations opened up to consumers. Will has had a lifelong fascination with simulations. His interest in plastic models of ships and airplanes during his childhood in Georgia eventually led to his designing computer models of cities, ecosystems and ant colonies.

SimCity was released in 1989, and within a few months became a hit. The game has since won 24 domestic and international awards. With Fred Haslem, Will co-designed SimEarth-The Living Planet in 1990, a simulation of a planet based on the Gaia theory of James Lovelock. In 1991, Will and Justin McCormick designed SimAnt-The Electronic Ant Colony, a scientifically-accurate simulation of an ant colony. SimCity 2000 and SimCopter, a helicopter flight game, are Will's most recent releases. Taking computer entertainment to its most personal level yet, Will's next game, The Sims, put players in charge of the lives of a neighborhood of simulated people.

Will has become one of the most successful designers of interactive entertainment in the world. In 1999 alone Electronic Arts, which owns the Maxis studio, has sold well over a million copies of SimCity 3000, the latest incarnation of SimCity. In 1999 he was included in *Entertainment Weekly's* "It List" of "the 100 most creative people in entertainment" as well as *Time Digital's* "Digital 50", a listing of "the most important people shaping technology today." However, his interests are not limited to computer games. **Lecture: Dynamics for Designers** *See page 57*

David Wu
David Wu is on a mission to prove to the world the truth of his long held hypothesis: In humankind's endless pursuit of happiness, good physics is just as vital as good coffee. While not programming, David Wu is the president and director of technology at Pseudo Interactive. **Lecture: Physics and Animation, Blending Kinetics and Kinematics in a 3rd Person Shooter** *See page 98*

Matt Yaney
See www.gdconf.com for bio. **Panel: Three Great Mobile Games** *See page 63*

Jim York
Jim is a software design engineer at Microsoft's Digital Anvil studio. Most recently working as the primary interface programmer for Brute Force, he's been programming and designing games since 1996. A recurring passion has been user interface design, likely due to working on a title with an atrociously overcomplicated interface early in his career. Jim's been working to right past wrongs through his tenure at Realtime Associate's Seattle division, KnowWonder, and Digital Anvil. **Roundtable: Aovanced User Interface Design** *See page 54*

Itsuro Yoshimoto
Itsuro Yoshimoto is the project leader of Wireless Content Division for Namco Hometek Inc. Itsuro is responsible for providing wireless contents to major carriers within the North American market. Before he joined Namco in 2001, he worked at CASIO for 18 years as an engineer for electronic musical keyboards, DAT, CD boom boxes with built-in LCDTV & games, etc and acquired many patents. Since he moved from Tokyo to the Bay Area in 1996, he has worked with ISVs and made application package CD-ROMs for Windows CE PDAs, and has also been involved in new product planning and technical research. He graduated from Kyusyu Institute of Design in 1983, majoring in Acoustic Design. **Panel: How to Take Your Mobile Game to Market** *See page 46*

Neil Young
Neil Young is the vice president and executive in charge of production at Electronic Arts and is currently leading development on the Lord of the Rings games based on the New Line Cinema license. Currently in development on Return of the King, the group is already seeing success in the first of the franchise series of the games: The Two Towers.

Neil joined the staff at Probe Software in 1990 as a senior producer, working on a wide variety of titles for Acclaim, Sega, Hudson, USGold and Virgin Interactive. British-born Neil began his career in the interactive entertainment industry in 1988, when he was a programmer and producer at Imagitec, a small British development company. **Lecture: FilmGame: Aoapting Lord of the Rings** *See page 58*

Cyril Zeller
Cyril Zeller works in the technical developer relations group at Nvidia where he is involved in various demos and tool development, as well as developer education events. Before joining Nvidia, Cyril developed games at Electronic Arts. He received a PhD in computer vision from the Ecole Polytechnique, France. **Sponsored Session: Programming the GPU using Cg** *See page 99*

Charles Zembillas
See www.gdconf.com for bio. **Panel: Crack Character Creation: The Mao Puffer Fish Panel** *See page 107*

Gabe Zichermann
Well before the advent of modern e-commerce, Gabe Zichermann was a pioneer in the use of new technologies designed to foster growth in the emerging online business arena. In recent years his focus has been the secure distribution of videogames and software through peer-to-peer networks. Trymedia's extensive research and the widespread adoption of its ActiveMARK secure content distribution technology has made Zichermann an expert on such topics as P2P business models, file-sharing, broadband consumer profile data, e-commerce and digital piracy. **Panel: Proven Strategies for Self-Publishing on the Internet: Real-Life Stories of What Works and What Doesn't** *See page 48*

Eric Zimmerman
Eric Zimmerman has been working in the game industry for nine years on a variety of platforms. Early titles include the award-winning PC games Gearheads and The Robot Club. In 2000, Eric founded gameLab, a New York City-based game developer specializing in experimental game design. More recent game projects include the multiplayer online games SISSYFIGHT and LEGO Drome Racing Challenge, as well as singleplayer games LEGO Junkbot, LOOP, BLiX, and Spybot: The Nightfall Incident. Eric is active on the IGDA Education Committee and has taught game design at MIT, NYU, and Parsons School of Design. He currently is co-authoring two books on game design to be published in 2003. **Lecture: Breaking the Rules of a Game** *See page 54* **Tutorial: (150) IGDA Acaoemic Summit** *See page 28*

Ronen Zohar
See www.gdconf.com for bio. **Sponsored Session: Pentium 4 Processor Optimizations in DirectX 9.0*** *See page 98*

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Dolby Laboratories will be showing the benefits of implementing Dolby Digital 5.1 and Dolby Pro Logic II in games. Additionally, Dolby will educate sound designers and developers on how to take advantage of Dolby's audio technology and support services to make their games better.

DTS
5171 Clareton Drive
Agoura Hills, CA 91301-4523
Phone: 818-706-3525
Fax: 818-706-1868
www.dtsonline.com
Booth 1626
DTS Interactive delivers the ultimate gaming experience. The only real time discrete 5.1 channel surround sound during game-play for PlayStation2. Find out how our DTS Software Developers Kit (SDK) helps developers make the game real. For more information contact Glenn Arentzoff at 818-706-3525 or email: garentzoff@dtsonline.com.

Epic Games, Inc.
5511 Capital Center Drive, Suite 675
Raleigh, NC 27606
Phone: 919-854-0070
Fax: 919-854-0055
www.epicgames.com
Expo Suite 316
Epic Games will use its Expo Suite for demonstrations of the latest version of its Unreal Engine technology. Rainbow Six: Raven's Shield, Unreal Championship, Harry Potter and the Chamber of Secrets and Splinter Cell are just a few of the recent examples of games created using the Unreal Engine.

Firaxis Games
11350 McCormick Rd, Suite 1300
Hunt Valley, MD 21031
Phone: 410-891-3001
Fax: 410-891-3015
www.firaxis.com
Booth CP 1937
Firaxis Games, developers of Civilization 3 and Alpha Centauri, and home of legendary designer Sid Meier, is looking for seasoned game developers and programmers to help them create the next wave of award-winning, best selling PC games. We'll be showcasing our games and company so please stop by.

exhibitor descriptions

Firelight Technologies
704/20 Rakaia Way
Docklands, 3008
Victoria, Australia
Phone: +61 419 281267
Fax: +61 3 96022982
www.fmod.org
Booth 1044
Firelight Technologies will be exhibiting the latest version of the FMOD SoundSystem for games. FMOD is a multiplatform audio engine which outperforms the competition in features, performance and price. FMOD now supports Win32, PocketPC, Linux, Macintosh, PlayStation 2, Xbox and Gamecube.

GameSpy Industries
18002 Skypark Circle
Irvine, CA 92614-6429
Phone: 949-798-4200
Fax: 949-798-4299
www.gamespy.com
Booth 838
GameSpy Industries is the leading online entertainment and technology company. GameSpy delivers multiplayer gaming technologies, online distribution services, and editorial content to developers, publishers, and consumers worldwide.

GameSpy Industries announces the Firewall & Nat Negotiation Toolkit. The SDK gives developers a tool to get more people playing their game online, while reducing the inevitable and expensive support problems caused by confusing and complex end-user router configurations. This Toolkit is available for immediate download for registered developers.

GarageGames
345 Mill St. #200
Eugene, OR 97401
Phone: 541-345-3040
Fax: 541-345-3040
www.garagegames.com
Booth 1148
GarageGames is a unique on-line game publisher—providing education, technology and publishing solutions to one of the world's largest independent game developer communities. They build their reputation on making world-class technologies like the Torque Game Engine affordable to independent game developers. For more information about publishing and technologies provided by GarageGames visit www.garagegames.com.

Gigex, Inc.
531 Howard St.
San Francisco, CA 94105
Phone: 415-227-4770
info@gigex.com
www.gigex.com
Booth 1702
Gigex is a leading promotions and advertising company for video game developers and publishers specializing in PC demos and console trailers. Gigex reaches 26 million unique gamers through its network of 75 sites and has promoted over 200 titles in 2002. Talk to us if you are releasing a new game.

Havok
510 Veterans Blvd
Redwood City, CA 94063
Phone: 650-322-2332
Fax: 650-701-0067
www.havok.com
Booth 1526
The Havok SDK is the fastest, most flexible, cross-platform game dynamics solution available on the market today. The Havok team has one focus—building game specific solutions that work. That has made Havok the No. 1 provider of middleware physics to the game industry today. Stop by the booth and check out Havok 2.

Havok 2 is now available. It is the most highly performing and most scalable dynamics engine on the market today. It is easy to customize and new improvements make it easier to debug and profile your game. It includes features specifically tailored for game developers to create vehicle or character based games.

iBill
2200 SW 10th Street
Deerfield Beach, FL 33442
Phone: 888-371-7800
Fax: 954-363-4401
www.iBill.com
Booth 1345
If you're a web merchant with products, services or content to sell, iBill has a turnkey e-commerce solution that's designed just for you. Our simple, real-time, secure payment processing solutions will get your online sales up and running quickly! For more information about iBill, visit the company on the web at www.iBill.com or call (888)371-7800.

ID8 Media
2070 Allston Way, Suite 3
Berkeley, CA 94704
Phone: 510-665-1111
Fax: 510-649-4730
www.id8media.com
Booth 1248
ID8 Media is a leading 3D and multimedia solution provider to game developers. Contact us for the latest and the best tools for modeling, and animation. One of the largest Discreet resellers, ID8 Media provides quality training on Discreet software at its San Francisco training center.

Ideazon
3100 Steeles Ave. West, Suite 401
Vaughan, ON L4K 3R1
Canada
Phone: 905-761-0640
Fax:905-761-0643
www.ideazon.com
Booth 535
Ideazon is an innovator in the design and development of next generation keyboard systems that allow gaming enthusiasts to very quickly learn and master complex games. Ideazon partners with industry leading game publishers, and makes its keyboard systems available through major retailers across North America.

The versatile Zboard is the world's first interchangeable keyboard system. It is comprised of a permanent base and a variety of interchangeable interfaces for today's most popular games. The patent-pending two-piece design allows users to quickly and easily change keyboards and access special keys that take maximum advantage of a game's features.

IGDA
600 Harrison St.
San Francisco, CA 94107
Phone: 415-947-6235
Fax: 415-947-6090
www.igda.org
Concourse
The International Game Developers Association is an independent, non-profit association established by game developers. The IGDA fosters the creation of a worldwide game development community to better the industry and develop the art form. Visit the IGDA booth during GDC to learn how you can get involved throughout the year.

exhibitor descriptions

Immersion Corporation
801 Fox Lane
San Jose, CA 95131
Phone: 408-467-1900
Fax: 408-467-1901
www.immersion.com
Booth 536
Since 1993, Immersion Corporation has developed haptic technologies that enhance human interaction with digital devices using their sense of touch. Immersion's technology is deployed across personal computing, entertainment, medical training, automotive and three-dimensional simulation markets. Immersion and its wholly owned subsidiaries hold over 181 issued patents worldwide.

Infogrames, Inc.
417 Fifth Avenue
New York, NY 10016
Phone: 212-726-4222
Fax: 212-726-4239
www.infogrames.com
Booth CP 1826
Infogrames, Inc. (Nasdaq: IFGM) develops interactive games for all platforms and is one of the largest third-party publishers of interactive entertainment software in the U.S. The company's 1,000+ titles are distributed under two brand lines: ATARI, hard-core, genre-defining games such as DRIVER, ENTER THE MATRIX, NEVERWINTER NIGHTS, STUNTMAN, TEST DRIVE, UNREAL TOURNAMENT 2003, and UNREAL CHAMPIONSHIP; and INFOGRAMES, mass-market and children's games such as BACKYARD SPORTS, Nickelodeon's BLUE'S CLUES and DORA THE EXPLORER, CIVILIZATION, DRAGON BALL Z and ROLLERCOASTER TYCOON. Infogrames, Inc. is a majority-owned subsidiary of France-based Infogrames Entertainment SA (Euronext 5257), the largest interactive games publisher in Europe.

InSpeck
3530 St-Laurent Blvd., Suite 303
Montreal, Quebec H2X 2V1
Canada
Phone: 514-284-1101
Fax: 514-284-1108
www.inspeck.com
Booth 1706
InSpeck will be presenting its new 3D Mega Half Body digitizer and its 3D modeling software. LIVE demonstrations will include how to quickly integrate a person's 3D model into a game and/or animation! Visitors will also see how InSpeck's new Full Body Model Retargeting tool can accelerate their company's workflow.

What was once wishful thinking is now reality; EM (InSpeck's proprietary 3D software) users can go from an actual 3D acquisition to an animation in just a few clicks of the mouse! InSpeck will be demonstrating its Full Body Model Retargeting tool at GDC 2003. Don't miss it!

Intel
www.intel.com
Booth 1116
Whether you are developing cutting edge games or contemplating how to achieve higher profitability, Intel has solutions for you. With Intel Developer Services, you get online technical, marketing, and business development resources to help accelerate the successful development and deployment of your gaming software. If you are looking to develop for a huge customer base and on the best gaming platform, an Intel Pentium 4 processor-based system is the best way to go. For a demonstration on how this all comes together, come visit our booth (#1116). For more information right now, go to www.intel.com/IDS. If your company is looking to be successful in gaming, then you should be looking to Intel.

Intrinsic Graphics, Inc.
1340 Space Park Way
Mountain View, CA 94043
Phone: 650-966-6800
Fax: 650-966-6900
www.intrinsic.com
Booth 738 and MR 4416, 4405
Intrinsic Alchemy is a comprehensive development and run-time environment that acts as the foundation for the developer's tool chain, streamlining development and improving time-to-market. Intrinsic will demo currently shipping games that have been developed using Alcyhemy, as well as present in-house demos that showcase Alchemy technology.

Intrinsic AlchemyR 3.0 is a software development platform that easily integrates with the developer's own tools and code. It acts as the foundation for the developer's tool chain, with support for leading third-party tools and modules. It provides developers fundamental multi-program interaction, resource management and basic operating system services.

IT GlobalSecure Inc.
PO Box 53330
Washington, DC 20009
Phone: 202-332-5878
Fax: 202-478-1743
www.itglobalsecure.com
Booth 525
IT GlobalSecure debuts its SecurePlayT middleware that ensures the honesty of games played over any network. This platform and network-neutral technology is provided to developers for everything from handhelds, consoles and PCs and wireless to broadband. IT GlobalSecure Inc. is a full-service IT security product and services firm.

Fair Play is Here Today: IT GlobalSecure's SecurePlayT middleware locks down security and unleashes the revenue potential for any network game. The SecurePlay ProtocolT and SecurePlay ContractT deliver a secure, open framework for game and tool developers, site operators, and players in the emerging $20 Billion network gaming industry.

exhibitor descriptions

Khronos Group
PO Box 1079
Clearlake Park, CA 95424
Phone: 707-994-7755
Fax: 707-994-7799
www.khronos.org
Booth 547
The Khronos Group is a consortium of leading media-centric companies including TI, Symbian, nVidia, 3Dlabs, ARM, ATI, Discreet, DVS, Motorola, Nokia and SGI—that are dedicated to creating open standard APIs to enable the authoring and playback of rich media on a wide variety of platforms and devices.

OpenGL ES is the official open standard API to bring advanced 3D gaming capabilities to mobile devices—including cell phones. OpenGL ES are subset profiles of OpenGL to enable full 3D gaming in very small devices—with or without hardware acceleration—that will enable potentially millions of new users.

Konami of America
1400 Bridge Parkway
Redwood City, CA 94065
Phone: 650-654-5600
Fax: 650-654-5690
www.konami.com
Booth CP 1829
Konami of America, Inc. a leading publisher in the rapidly growing video game industry is looking to meet with 3rd Party Developers for identifying and advancing possible future outside development alliances. With high quality titles on every major game entertainment platform, Konami looks to lead the U.S. video game market.

Logitech
6505 Kaiser Dr.
Fremont, CA 94555-3615
Phone: 510-795-8500
Fax: 510-792-8901
www.logitech.com
Booth 1008
Founded in 1981, Logitech designs, manufactures and markets personal interface products that enable people to effectively work, play, and communicate in the digital world.

Logitech designs, manufactures and markets a wide variety of innovative peripherals for PC and console. On display will be the latest force feedback wheels and 2.4GHz cordless peripherals for PC, PlayStation 2, Xbox and Gamecube. Logitech will also be leading interactive presentations on new technologies.

LucasArts Entertainment Company
P.O. Box 10307
San Rafael, CA 94912
Phone: 415-472-3400
www.lucasarts.com
Booth CP 1929
LucasArts Entertainment Company LLC is a leading developer and publisher of interactive entertainment software worldwide. Based in San Rafael, Calif., as well as on the Internet at www.lucasarts.com, LucasArts is one of five companies in the Lucas group which include Lucasfilm Ltd., Lucas Digital Ltd. LLC, Lucas Licensing Ltd., and Lucas Online.

Maryland Dept. of Business & Economic Development
217 East Redwood St., 12th Floor
Baltimore, MD 21202
Phone: 1-888-CHOOSEMD
Fax: 410-333-6792
www.choosemaryland.org
Booth 1646
Affordable Maryland—home to Sid Meier's Firaxis and the East Coast's largest cluster of GD companies—offers a highly-educated professional/technical workforce and balances the nation's highest median income with a diverse seashore-to-mountains high-quality of life. We offer incentives for your company's expansion or relocation needs.

Metrowerks
9801 Metric Blvd, Suite 100
Austin, TX 78758
Phone: 800-377-5416 (within the US)
Phone: 512-997-4700 (outside the US)
Fax: 512-997-4901
www.metrowerks.com/games
Booth 628
CodeWarrior Game Development Tools give developers the broadest suite of development options! Metrowerks offers development and analysis tools for the Sony PlayStation2, NINTENDO GAMECUBE, development tools for the Game Boy Advance, and tools for wireless devices. Metrowerks provides project and editor plug-in support of Microsoft Visual Studio, .NET technology, and supports other leading third-party plug-ins. Metrowerks offers personalized technical support from new-user support to in-person consultation! Stop by the Metrowerks booth to see the latest innovations in tools for Nintendo, PlayStation2, and Wireless platforms! For more information contact us at games@metrowerks.com.

Microboards Technology
8150 Mallory Ct
Chanhassen, MN 55317
Phone: 952-556-1600
Fax: 952-556-1620
www.microboards.com
Booth 1343
Microboards is a manufacturer and distributor of DVD and CD Recordable Technology. We offer publishing machines for recording, duplicating, and printing your CDs and DVDs, whether it be for testing, submission, or distribution. Featuring DVD/CD printers that print up to 200 discs per hour, and award-winning standalone duplicators!

Microboards Print Factory is a CD/DVD printer capable of up to 4800 dpi printing and up to 200 discs per hour. Print Factory is the only inkjet CD/DVD printer that prints capable on the inner hub of recordable media. Print Factory has a list price of $2,495 and is available through Microboards resellers.

Microsoft Corporation
One Microsoft Way
Redmond, WA 98052
Phone: 425-882-8080
Fax: 425-936-7329
Booth CP 1933

DirectX
www.msdn.microsoft.com/directx
Expo Suite 124
Microsoft DirectX, located in Expo Suite 124, will be hosting pre-arranged meetings as well as conducting two-hour hands-on High Level Shader Language workshops during GDC. These free workshops are intense and information packed, targeted at well-seasoned graphics engineers only. Seating is limited to 40 students per class. Register online for these free workshops at http://www.microsoft.com/windows/directx/workshop.

Xbox
www.xbox.com
Expo Suite 116
Xbox (http://www.xbox.com/) is Microsoft's future-generation video game system that delivers the most powerful games experiences ever. Xbox empowers game artists by giving them the technology to fulfill their creative visions as never before. Xbox is now available in North America, Japan, Europe and Australia.

exhibitor descriptions

Xbox Live
Xbox Live is the first comprehensive, online game arena fully dedicated to fast-action broadband gaming experiences. Xbox Live will allow gamers to play multiplayer Xbox games with other gamers everywhere via a high-speed Internet connection. With a built-in hard drive and Ethernet port, the Xbox console was built from the ground up to be an online gaming system.

Xbox Live will enable all gamers to find and play with their friends easily, talk to other players during game play through the Xbox Communicator headset, and download current statistics, new levels and characters to their Xbox hard drive.

Midway
2704 West Roscoe
Chicago, IL 60618
Phone: 773-961-2000
Fax: 773-961-2376
www.midway.com
Booth CP 1850
Midway Games Inc. is a leading developer, publisher and marketer of interactive entertainment software. Midway videogames are available on all home platforms. Midway is legendary in the industry, responsible for breakthrough titles including Pong, Defender, and Spy Hunter. Blockbuster titles include Ready 2 Rumble Boxing, NFL Blitz, and Mortal Kombat. Midway, headquartered in Chicago, has development studios in Chicago, IL, Milpitas, CA and San Diego, CA.

Morgan Kaufmann, an imprint of Elsevier
340 Pine Street
San Francisco, CA 94104
Phone: 415-392-2665
Fax: 415-982-2665
www.elsevier.com
Booth 1710
See new and forthcoming titles from Morgan Kaufmann on the topics of geometric tools, level of detail, shader programming, collision detection, and game physics.

Motorola
600 N US Highway 45
Libertyville, IL 60048
Phone: 847-576-5000
www.motorola.com
Booth 1436
Motorola, Inc., a global leader in providing integrated communications and embedded electronic solutions, is leading the industry in bringing J2ME technology to wireless communications. Motorola offers a portfolio of solutions with J2ME technology including more than a dozen wireless phones, a download server, branded applications and content and a full service developer program to assist software developers in creating and certifying new wireless applications.

NaturalMotion
Chester House
George Street
Oxford
United Kingdom
OX1 2AY
Phone: +44(0)1865 726860
contact@naturalmotion.com
www.naturalmotion.com
Booth 1544
NaturalMotion, the creator of Active Character Technology, premieres Endorphin—the world's first Virtual Motion Capture Studio. Give your character a physical body and a simulated brain to control it. Create realistic human motions, in real-time. Generate pure data. Deliver the impossible move. Endorphin: a motion capture studio on your desk. Endorphin—Virtual Motion Capture.

NDL
1506 East Franklin St.
Suite 302
Chapel Hill, NC 27514
Phone: 919-929-2917
Fax: 919-967-3237
www.ndl.com
Booth 1536
NDL announces a major new release of our C++ 3D Graphics Engine and Toolset, featuring support for the pixel and vertex shaders, tools that allow artists to easily access those shaders, and significant performance improvements on all platforms: PC, Playstation, Xbox, and Gamecube. Mythic Entertainment (Dark Age of Camelot), and Bethesda Softworks (Elder Scrolls III: Morrowind) are just two of the many developers using NDL software.

netquartz
One Ridge View
14900 Conference Center Drive
Suite 325
Chantilly, VA 20151
Phone: 703-621-1400
Fax: 703-621-1403
www.netquartz.com
Booth 645
netquartz leads the new generation of software and gaming licensing solutions with its Software Distribution Modeling methodology and technologies. The company is already the leading supplier of preview/review security systems and is extending its lead to the game retail protection market.

Customers: Infogrames, Microsoft Games, UbiSoft, Vivendi Universal

Using netquartz's Software Distribution Modeling technologies, ez platform protects your games throughout their life-cycle, from initial betas through critical previews and reviews to the final retail version. ez platform actually prevents piracy by transferring a crucial piece of your game's code to a Virtual Machine in which it must be run.

exhibitor descriptions

Nintendo of America Inc.
4820 150th Avenue NE
Redmond, WA 98052
Phone: 425-882-2040
www.nintendo.com
Booth CP 1922
Nintendo Co., Ltd., of Kyoto, Japan, is the acknowledged worldwide leader in the creation of interactive entertainment. To date, Nintendo has sold more than one billion video games worldwide, created such industry icons as Mario and Donkey Kong and launched franchises like The Legend of Zelda and Pokémon. Nintendo manufactures and markets hardware and software for its popular home video game systems, including Nintendo 64 and Game Boy—the world's best-selling video game system.

Nokia
www.forum.nokia.com/games
Booth 808
Stop by the booth and get your hands on the latest Nokia devices, including N-Gage™, and pick up the tools and technical documentation you need to help you get started in mobile gaming. And if you can't make it to the booth, catch our sponsored sessions during the show and find all of our resources for games developers at www.forum.nokia.com/games

nPower Software
13064 Trail Dust Ave.
San Diego, CA 92129
Phone: 858-538-3800
Fax: 858-538-3800
www.nPowerSoftware.com
Booth 1147
nPower Software, makers of the popular Power Booleans, Power Solids, and Power Translators plug-ins for 3DS Max is introducing 2 new products for game developers: Power Booleans 2.0 with level editing for game development, and Power Booleans for Rhino. Come visit us and see how nPower plugins improve game development.

nPower Software announces Power Booleans for Rhino. The popular Power Booleans Max / Viz plugin is now available for Rhino. Power Booleans provides precise polygonal booleans with high quality meshes. Power Booleans includes automatic polygon reduction to simplify models for game developers.

nPower Software announces version 2.0 of its popular Power Booleans plugin for 3DS Max / Viz. Power Booleans 2.0 includes CSG based level editing for game developers. It also includes a new subdivision friendly meshing algorithm for smoother quad based meshes.

NVIDIA Corporation
2701 San Tomas Expressway
Santa Clara, CA 95050
Phone: 408-486-2000
Fax: 408-486-2200
www.nvidia.com
Booth 1108 and CP 1942
NVIDIA Corporation is the worldwide leader in graphics processors and media communications devices. The unmatched breadth of the NVIDIA product line enriches 3D and 2D graphics, video, audio, communications, broadband connectivity, and television for every audience and platform including game consoles, workstations, Internet-enabled appliances, Apple Macintosh, and mobile PCs.

NXN Software
1247 7th Street, Suite 200
Santa Monica, CA 90401
Phone: 310-393-8535
Fax: 310-394-1366
www.nxn-software.com
Booth 524
Boost your team's performance with NXN alienbrain's latest productivity features and configuration management tools.

Attend our Sponsored Sessions: Key developers and technology partners will show how NXN alienbrain's powerful asset management technology helps improve quality throughout a game's development cycle. Check schedule for times.

NXN alienbrain's latest version now features new productivity enhancements and powerful configuration management tools to support professional game developers, including: Advanced branching; High-quality merging (with Araxis Merge); Command line options; Bug Tracking Extension (BMX).

Oddworld Inhabitants
869 Monterey Street
San Luis Obispo, CA 93401
Phone: 805-503-3000
Fax: 805-503-3030
jobs@oddworld.com
www.oddworld.com
Booth CP 1938
Oddworld Inhabitants was formed in 1994 by industry veterans Sherry McKenna and Lorne Lanning. Previous award winning titles include Oddworld: Abe's Oddysee, Oddworld: Abe's Exoddus and Oddworld: Munch's Oddysee. Located in beautiful San Luis Obispo, California, their facility attracts top talent from all over the world.

If you desire to do exceptional work, visit booth #1938 in the Career Pavilion.

Production is underway for a 2003, fourth quarter release of their next title currently referred to as Oddworld Four. The details for this project are being closely guarded and although it is unlike anything they've released so far, we think you'll agree it couldn't have come from anyone but Oddworld.

Peer 1 Network, Inc.
2100 - 555 West Hastings Street
Vancouver, BC V6B 4N5
Canada
Phone: 604-683-7747
Fax: 604-683-4634
www.peer1.net
Booth 938
Peer 1 Network is North America's pre-eminent supplier of high performance Internet bandwidth and server co-location facilities. Our network caters to businesses that demand the very best of bandwidth and performance Peer 1 Network's co-location facilities offer businesses from around the world a safe and secure server environment.

Perforce Software
2320 Blanding Ave.
Alameda, CA 94501
Phone: 510-864-7400
FAX: 510-854-5340
www.perforce.com
Booth 1347
The Perforce Software Configuration Management system manages the changes developers make writing code and creating digital assets. Perforce is fast, easy to use and administer, and provides rich functionality—including version control, workspace management, atomic change transactions, and a powerful branching model—on more than 50 platforms.

exhibitor descriptions

Premier Press
25 Thomson Place
Boston, MA 02210
Phone: 1-888-270-9300
Fax: 317-920-1819
www.premierpressbooks.com
Booth 519
Premier Press is one of the first publishers to provide game developers with books dedicated to applications and topics relevant to their field. Visit the Premier Press booth to meet series authors and to meet Series Editor and game industry expert André LaMothe.

Premier Search, Inc.
310 E Warm Springs Rd
Suite D
Las Vegas, NV 89119
Phone: 702-222-3633
Fax: 702-222-3626
www.premier-search.net
Booth CP 1825
Premier Search is the professional placement agency specializing in the entertainment software industry. Our personal commitment to ethics and quality has made us the winning choice for today's top-name talent. Come by and visit us for your chance to win a new Dell Axim X 5 pocket PC, and more.

Quazal
433 Place Jacques-Cartier
Montreal, QC H2Y 3B1
Phone: 514-395-4646
Fax: 514-395-6006
www.quazal.com
Booth 1144
Founded in 1998, Quazal is no newcomer to networking challenges. Our strengths lie in our innovative, high-level solutions that can slash your network integration time to just a few weeks, backed up by dedicated, personalized support to ensure you achieve the best network performance possible for your game.

Quazal's revolutionary patented Duplicated Object technology decentralizes game information and reduces a game's sensitivity to adverse network conditions. Quazal offers two fully extensible and customizable APIs that will slash your networking integration time to a matter of weeks: Net-Z for MP development and Eterna for large-scale persistent MMP worlds.

RAD Game Tools
401 Park Place #103
Kirkland, WA 98033
Phone: 425-893-4300
Fax: 425-893-9111
www.radgametools.com
Booth 1016
RAD Game Tools will be showing all of their impressive technology products: Pixomatic Rendering Technology (Michael Abrash and Mike Sartain's new software Renderer), Bink Video (their popular video codec) for Windows, Xbox and now shipping for Nintendo Gamecube, Granny 3D (their new character and dynamic 3D animation run-time library, and the Miles Sound System (supporting voice chat, MP3 and all the latest 3D Audio API's).

Pixomatic is RAD's new software renderer. It provides MIP mapping, bi-linear filtering, alpha-blending, alpha-test, point sprites, multi-texture, 32-bit and palletized textures, DOT-3 bump mapping, fog, specular, stencil and z-buffering, indexed primitives, multiple streams, high-speed blitting, and more! Pixomatic uses runtime code generation to create optimized MMX, 3DNow!, and SSE code on-the-fly!

Radical Entertainment
369 Terminal Avenue
Vancouver B.C. V6C 4A4
Canada
Phone: 604-602-2634
Fax: 604-687-1006
www.radical.ca
Booth CP 1845
At Radical Games Ltd., we play to win. Talent is our lifeblood, so we look for the best of the best. As Canada's largest privately owned game developer, we have over 175 talented employees, we've been around for over 10 years and we've shipped more than 30 titles. Radical has longstanding relationships with entertainment and technology powerhouses such as Microsoft, Sony, Fox, Electronic Arts, and THQ. Living in Vancouver British Columbia has its obvious advantages.

- be at the beach in 10 minutes
- take a break and go rollerblading along Vancouver's waterfront
- be at our local ski hills in 30 minutes; World class Whistler Mountain is 90 minutes away
- enjoy lunch on our roof top patio with breathtaking mountain views
- submit your own game concept or design

We are looking for world-class game designers, AI programmers, next-gen console programmers, Associate Producers, and more. Check out our web site at: www.radical.ca/careers/

exhibitor descriptions

RealNetworks, Inc.
2601 Elliott Avenue
Seattle, WA 98121
Phone: 206-674-2700
Fax: 206-674-2699
www.realonearcade.com
www.real.com
Booth 638
RealNetworks, Inc., is the global leader in Internet media delivery. RealOne Arcade, a division of RealNetworks, Inc., offers consumers a fun and unique way to discover, acquire and play a wide array of PC games in a single, easy to use environment.

Red Storm Entertainment
3200 Gateway Centre Blvd., Suite 100
Morrisville, NC 27560
Phone: 919-460-1776
Fax: 919-468-3306
Booth CP 1930

Right Hemisphere
2740 West Magnolia Boulevard, Suite 305
Burbank, CA 91505
Phone: 877-309-3204
Fax: 818-557-0120
www.righthemisphere.com
Booth 1730
Right Hemisphere creates award-winning 3D graphic production solutions for game developers. Stay ahead of the competition by creating more realistic characters and producing leading interactive game play through customisation that enhances the overall gaming experience. Right Hemisphere's technology is developed in collaboration with customers and leading strategic partners.

Right Hemisphere, creators of the award-winning Deep Exploration, Deep Paint 3D and Deep UV now offers Deep Character, a customized solution for game development and publishing. Players can easily paint, customize and modify the geometry characters as if they were a 3D sculpture, directly within the game environment.

Sammy Studios
5650 El Camino Real, Suite 225
Carlsbad, CA 92008
Phone: 760-448-3000
Fax: 760-448-3500
www.sammy-zone.com
Booth CP 1821
Sammy Studios develops and distributes interactive entertainment for next-generation consoles and personal computers. The company has headquarters and a state-of-the-art development studio in Carlsbad, California, and a second studio and office complex in Los Angeles. Sammy Studios is a subsidiary of Sammy Corporation, one of Japan's most successful entertainment companies.

SEGA of America, Inc.
650 Townsend Street, Suite 650
San Francisco, CA 94103
Phone: 415-701-6000
www.sega.com
Booth 440
SEGA of America is the American arm of Tokyo, Japan-based SEGA Corporation, a $3.5 billion corporation by market capitalization, recognized as a worldwide leader in interactive entertainment both inside and outside the home. The company develops, publishes and distributes interactive entertainment products for a variety of hardware platforms including PC, wireless devices, and those manufactured by Nintendo, Microsoft, and Sony Computer Entertainment Inc.

Sega.com
650 Townsend Street, Suite 550
San Francisco, CA 94103
Phone: 415-701-6000
Fax: 415-701-4799
www.us.segamobile.com
www.sega.com
Booth 426
Sega.com will be showcasing offerings from Sega Mobile including mobile games such as SEGA Monkey Ball and SEGA Soccer Slam for major carriers including AT&T, Sprint and Alltel.

Sega.com will have information available on the SEGA Network Application Package (SNAP) which is a suite of technologies and services designed to provide a multi-platform, end-to-end, network multiplay solution for developers to help them successfully take their games online across multiple platforms.

Semi Logic Entertainments
9434 Deschutes Road, Suite 200 # 923
Palo Cedro, CA 96073
Phone: 530-547-3730
Fax: 530-547-5723
www.semilogic.com
Booth CP 1842
Semi Logic Entertainments is a video game developer working with leading publishers including Mattel, Electronic Arts, Simon & Schuster, and U.S. Military. Semi Logic has been developing games for over 9 years and is interested in meeting new clients' needs for the PC, Xbox, PS2, GC and Internet platforms.

Sensaura Limited
Dawley Road
Hayes
Middlesex
UB3 1HH
United Kingdom
Phone: +44 20 8848 6636
Fax: +44 20 8848 6760
info@sensaura.com
www.sensaura.com
www.gamecoda.com
Booth 1652
Sensaura Limited (www.sensaura.com) is at the forefront of audio research, both in the PC and the consumer electronics market. Sensaura provides the native 3D audio and reverb technology used on Microsoft's Xbox. Through our audio middleware solution, GameCODA, Sensaura's technology is also available on PC, Sony PlayStation2 and Nintendo Gamecube. For further information, contact info@sensaura.com

GameCODA (www.gamecoda.com) is the first truly multi-platform complete audio middleware solution available to developers. The software was developed using Sensaura's core suite of technologies and empowers PC, PlayStation2, Xbox and Nintendo Gamecube developers to easily integrate immersive audio into their game titles. For further information, contact sales@gamecoda.com

exhibitor descriptions

Silver Platter Software (formerly, Horizon, a Glimpse of Tomorrow)
2670 S. Myrtle Ave, Suite 200
Monrovia, CA 91016
Phone: 626-446-8925
Fax: 626-446-8942
www.silverplattersoftware.com
Booth 1336
Silver Platter Software is a Los Angeles-based developer of innovative networking technologies of the games industry. To demonstrate the benefits of its DEx networking engine, Silver Platter will allow attendees to play an online game, live, on the internet, at their GDC booth. Closed-door demonstrations of network traffic, system behavior, etc. will be available.

DEx is an innovative networking engine for massively multiplayer online games. DEx dramatically reduces MMOG development risk by decreasing time to market, and lowering server and bandwidth expenses more than 70%. Based on a unique, hybrid central-server/distributed-computing architecture, DEx offers a superior combination of cost savings, reliability, scalability, security, and performance.

Singular Inversions Inc.
1350 West 14th Ave.
Vancouver, BC V6H1R1
Canada
Phone: 604-730-1727
Fax: 604-730-1723
www.FaceGen.com
Booth 1714
Makers of FaceGen, the fastest, most flexible way to put realistic faces in your software. Have your face photo taken at our booth, turned into a 3D model, and morphed into a different race, age or gender. Add hairstyles and apply a full set of animation targets instantly.

FaceGen is the fastest, most flexible way to put realistic faces in your software. Create 3D faces at random or from 1 or 2 photographs. Use powerful shape and coloring controls. Apply faces to any polygonal mesh and UV layout. Code faces in 130 bytes with our SDK.

SlickEdit, Inc.
3000 Aerial Center Parkway, Suite 120
Morrisville, NC 27560
Phone: 919-473-0070
Fax: 919-473-0080
www.slickedit.com
Booth 940
SlickEdit Inc. provides the editing environment of choice for software engineers worldwide. Visual SlickEdit has earned the loyalty of software engineers by enabling them to increase development productivity and improve software quality. Visual SlickEdit provides unparalleled language and platform support, including support for Windows, Linux, UNIX variants and zSeries mainframe platforms and over 30 programming languages.

Visual SlickEdit enables software engineers to develop applications faster and more efficiently. Companies can leverage existing IT investments and skills by using the same graphical user interfaces across multiple platforms and languages. The product provides high-performance tools for organizing, analyzing and working with code, along with improving readability of code. Visual SlickEdit integrates with existing source control tools and development environments.

SN Systems
4th Floor, Redcliff Quay
120 Redcliff Street
Bristol
BS1 6HU
United Kingdom
Phone: +44 117 929 9733
Fax: +44 117 929 9251
www.snsys.com
Booth 1022
Tuner for Nintendo Gamecube—Tuner lets you capture and visualize Gamecube program behavior so that you can eliminate conflicts and bottlenecks in your code. Tuner captures data to a host PC in real-time while you play the game. The captured data can then be analyzed frame by frame and saved for later comparison with your optimized code.

SN TDEV for Nintendo Gamecube—SN TDEV is a cost effective development tool for Nintendo Gamecube. It comprises a Nintendo TDEV console, SN's USB2 adapter and host software. When used with ProDG for Nintendo Gamecube you can debug your Gamecube programs. Communication between the host and TDEV is via SN's USB2 adapter which provides bi-directional data transfer at 3MB/s.

exhibitor descriptions

SOFTIMAGE Co.
3510 St-Laurent
Montreal, Quebec H2X 2V2
Canada
Phone: 514-845-1636
Fax: 514-845-5676
www.softimage.com
Expo Suite 123
Softimage Co. is a leader in 3-D animation, compositing and special effects software, for the film, commercial/broadcast and games/interactive industries. Softimage products are integral to Avid's Make, Manage and Move Media strategy providing the industry's best 3-D nonlinear production environment for making professional animation, visual effects and games.

SOFTIMAGE|XSI, version 3.0, offers incredible new features and enhancements including smart automated character rigging, non-destructive animation mixing and WSYWIG real-time effects tools for Direct X and OpenGL, perfect software for your next game production. SOFTIMAGE|3D v.4.0 our legendary production proven software offers incredible modeling, animation and rendering at an entry-level price.

Sony Computer Entertainment
919 E. Hillsdale Boulevard
Foster City, CA 94404
Phone: 650-655-8000
Fax: 650-655-5511
www.playstation.com
Booth 1308 and CP 1822
Sony Computer Entertainment will host the PlayStation 2 booth. Drop by our comfortable booth to talk tech with our international team of engineers, check out the performance analyzer and latest peripherals, find out how to become a PlayStation 2 developer, or just relax on the couch and play some of the newest games!

Sony Online Entertainment
8928 Terman Court
San Diego, CA 92121
Phone: 858-577-3100
Fax: 858-577-3306
www.sonyonline.com
Booth CP 1830
Sony Online Entertainment Inc. (SOE), the online gaming division of Sony Pictures Digital Entertainment, is a worldwide leader in massively multiplayer online gaming that creates, develops and provides online entertainment for the personal computer, console, wireless, and online markets.

In addition to blockbuster hits EverQuest and Jeopardy! Online, SOE has an array of cutting-edge online games in development such as PlanetSide, Star Wars Galaxies, EverQuest II, and the world's premier online-only console game for the PlayStation2, EverQuest Online Adventures.

Sound Ideas
105 West Beaver Creek Road, Suite 4
Richmond Hill, ON L4B 1C6
Canada
Phone: 905-886-5000
Fax: 905-886-6800
info@sound-ideas.com
www.sound-ideas.com
Booth 523
Sound Ideas is your best source for multimedia, game and Web audio—providing both CD ROM and CD Audio collections to suit your needs. Sound Ideas continues its 20-year tradition as a leader in the audio industry, providing constant innovation as well as superior quality and content.

Soundelux DMG
7080 Hollywood Boulevard, Suite 100
Hollywood, CA 90028
Phone: 323-603-5100
Fax: 323-603-5101
www.soundeluxdmg.com
Booth 1742
Soundelux Design Music Group (DMG) is the industry's top provider of creative audio services for new media, film and commercials, producing award-winning sound design, music and voice-over for million-unit, best-selling games and gaming systems. Recent credits include: Devil May Cry II; Steel Battalion; Summoner II; Quantum RedShift; Ghost Recon and Chaos Legion.

Stormfront Studios, Inc.
4040 Civic Center Drive
San Rafael, CA 94903
Phone: 415-479-2800
Fax: 415-479-2880
www.stormfrontstudios.com
Booth CP 1921
Stormfront Studios is a leading developer of award-winning games for all major consoles, including the hit title "The Lord of the Rings: The Two Towers" (PS2 and Xbox, for EA), based on Peter Jackson's film from New Line Media. Founded in 1988, Stormfront focuses exclusively on developing "AAA" titles. Major past games include Blood Wake (Microsoft), NASCAR Racing (EA Sports) and Neverwinter Nights (AOL).

Stottler Henke Associates, Inc.
1660 S. Amphlett Blvd., Suite 350
San Mateo, CA 94402
Phone: 650-655-7242
Fax: 650-655-7243
www.stottlerhenke.com
Booth 648
Stottler Henke, an artificial intelligence research and development company, will be launching their new SimBionic AI toolkit for game designers and programmers.

SimBionic provides a visual behavior editor and runtime engine that make game AI development easy. Visit our booth and see SimBionic in action!

Technicolor
3233 East Mission Oaks Boulevard
Camarillo, CA 93012
Phone: 805-445-1122
Fax: 805-445-4340
www.technicolor.com
Booth 1726
Technicolor provides turnkey manufacturing solutions including optical media replication, supply chain management and distribution services. High volume capacity with dedicated customer support for all packaged media formats makes Technicolor an ideal partner to bring your products to market.

exhibitor descriptions

Testing Testing 123, Inc.
4124 148th Avenue NE
Redmond, WA 98052
Phone: 888-718-0837
Fax: 425-895-1496
www.TT123.com
Booth 739
Testing Testing 123 is engineered to be your low cost outsource testing solution. Our experienced team and base rate of $30USD provides an economical alternative to maintaining an internal QA department or hiring contract personnel. Whether it's playability, functionality or TRC, TCR and Lot-Check pre-certification, we can help!

THQ Inc.
27001 Agoura Road
Suite 325
Calabasas Hills, CA 91301
Phone: 818-871-5000
Fax: 818-871-7400
www.thq.com
Booth CP 1925
THQ is among the fastest growing videogame publisher in the world. The company's consistent earnings and profitability have led to rapid growth in the interactive entertainment sector. THQ's diverse product portfolio caters to every segment of the expanding gaming audience.

TimeGate Studios, Inc.
14140 Southwest Freeway
Suite 400
Sugar Land, TX 77478
Phone: 281-295-4263
Fax: 281-754-4723
www.timegate.com
Booth CP 1837
TimeGate Studios is attending this year's GDC in search of the industry's best artists, designers, and programmers to join its talented team! Originally founded in 1998 by a team of experienced and established businessmen and avid gamers, TimeGate continues its commitment to providing a stable environment that ensures its longevity and success. Combining leadership with a creative and experienced development team makes TimeGate an exciting company to watch!

TimeGate Studios exploded onto the gaming scene in 2001 with the release of the critically acclaimed Kohan: Immortal Sovereigns. Kohan has since won over 30 awards, including the coveted Strategy Game of the Year award from top gaming publications. TimeGate is currently developing Kohan II and another AAA title that is yet unannounced.

Touchdown Entertainment, Inc.
10610 NE 37th Circle
Kirkland, WA 98033
Phone: 425-739-1655
Fax: 425-827-3901
www.touchdownentertainment.com
Expo Suite 134
Touchdown Entertainment (formerly LithTech) focuses on licensing full-featured game development systems for a variety of platforms, including the PC and next generation consoles. Stop by our booth, experience our full suite of products and see how we can help you turn ideas into reality.

Turbine Entertainment Software
60 Glacier Drive, Suite 4000
Westwood, MA 02090
Phone: 781-407-4000
Fax: 781-329-5463
www.turbinegames.com
Booth CP 1926
Turbine Entertainment Software, developers of Asheron's Call, AC:Dark Majesty, and Asheron's Call 2: Fallen Kings, is a technological and creative leader in the design and production of massively-multiplayer online games. Turbine continues to develop new titles on multiple platforms, maintaining its position at the forefront of the industry.

With Asheron's Call 2: Fallen Kings, Turbine Entertainment Software has raised the bar for the MMORPG genre, producing a game that combines the most sophisticated graphics technology available in an MMP with a living, evolving world, constantly driven forward with monthly episodic content.

Vicarious Visions, Inc.
350 Jordan Road
Troy, NY 12180
Phone: 518-283-4090
Fax: 518-283-4095
www.vvisions.com
Booth CP 1954
We are continuing our commitment to developing hit title games for console and handheld platforms. Some of our games completed in 2002 include: Tony Hawk's Pro Skater 4 for GBA and PSX; Crash Bandicoot GBA; SpongeBob SquarePants GBA; PowerPuff Girls GBA; Bruce Lee GBA; Frogger GBA; Muppets GBA; Whiteout PSX, PC & PS2; Star Wars: Jedi Outcast Xbox & GC; as well as Tony Hawk Pro Skater 4 , Wireless. If you are looking for challenge and excitement, if you have a passion for developing great games, come see us at our booth! Programming, Art, Design and Management positions are available.

exhibitor descriptions

VIRTOOLS
93 rue Vieille du Temple
75 003 PARIS
FRANCE
Phone: 33 1 42 71 46 86
Fax: 33 1 42 71 86 53
www.virtools.com
Booth 1650
Founded in 1993 by Chairman and CTO Bertrand Duplat, the company has consistently created cutting edge solutions for real-time 3D interactivity. Virtools then developed its breakthrough software authoring tool—its behavior engine—for creating interactive 3D applications. Virtool's development solutions are now widely used, with clients from the game that include Electronic Arts, Microsoft, Microids, Blue Fang Games, and many others.

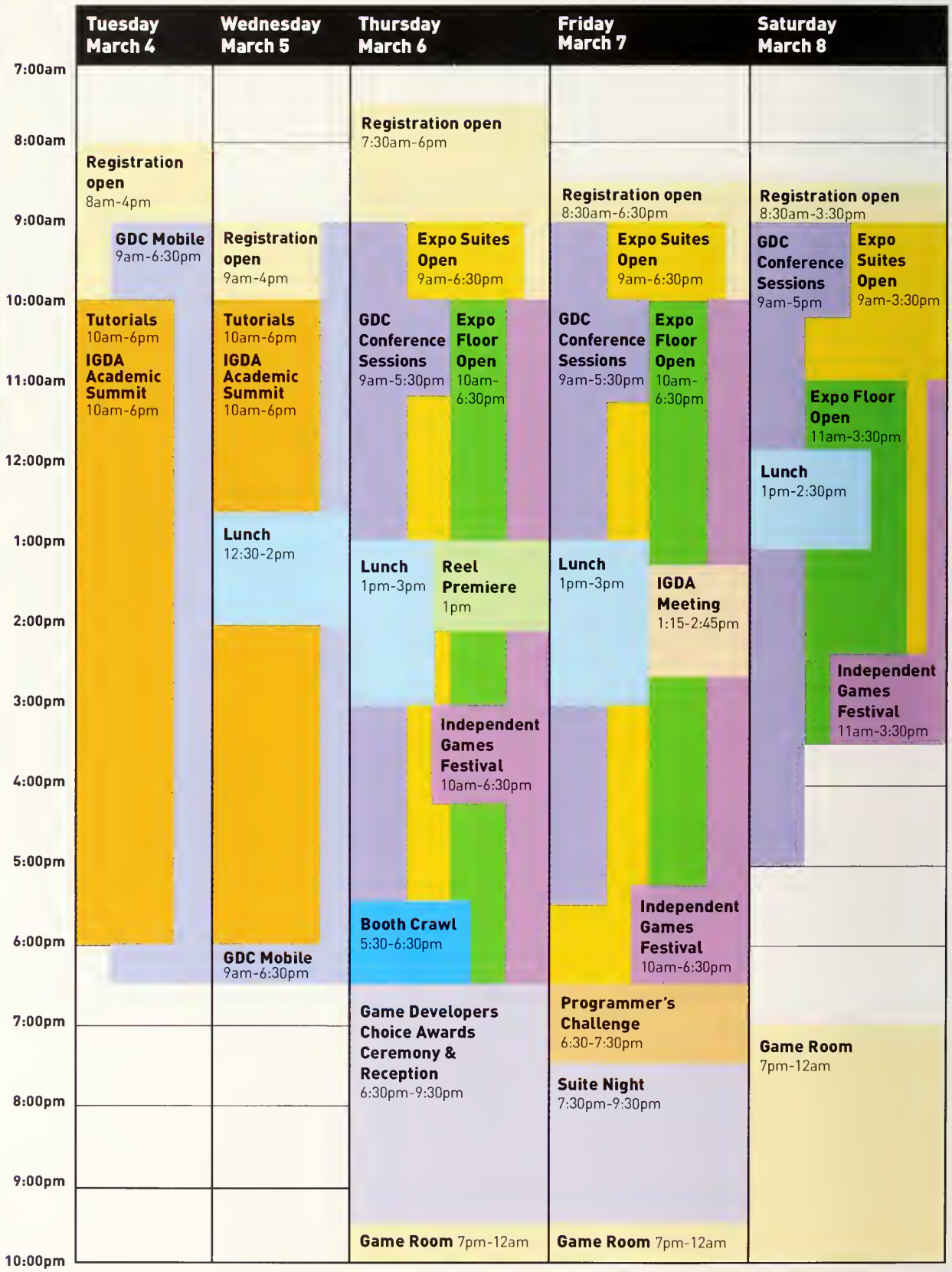
Virtools' revolutionary technology enables to create highly interactive applications. Flexible and powerful, Virtools' reusable development platform accelerates the production cycle and allows you to elaborate on previous projects. Use the "behavior library" or program your own behaviors with Virtools'SDK. Virtools has just released the latest version of its development platform: Virtools Dev 2.5 with new features as a new scripting language: the VSL.

Wordware Publishing, Inc.
2320 Los Rios Blvd, Suite 200
Plano, Texas 75074
Phone: 800-229-4949
Fax: 972-881-9147
www.wordware.com
Booth 1718
Wordware Publishing, Inc. based in Plano, Texas is a leading publisher of books for the game development market with a number of best-sellers such as Richard Rouse's Game Design: Theory and Practice and Paul Steed's Modeling a Character in 3DS Max.

Zona, Inc.
2606 Bayshore Parkway
Mountain View, CA 94043
Phone: 650-964-1133
Fax: 650-961-8833
www.zona.net
Booth 1028
You don't have to sweat bullets trying to figure out ways to reduce the risk of development and operation overhead for Massive Multi-player Online Games. Zona, Inc., the complete solution provider for MMOG development and operations, will be exhibiting multi-platform MMOG demos at Booth #1028 for your perusal.

Zona, Inc. is announcing Terazona Community Edition for rapid development of online games for small communities under 500 users; Terazona Standard Edition for mid-size online communities up to 2,000 players or fast action games; and Terazona MMOG Edition for large communities up to 32,000 players with one-year technical training and support.

schedule-at-a-glance



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With tight deadlines and multi-platform development challenges, creating a hot-selling game can drive anyone over the edge. Make great games even better by leveraging **3ds max** and its tight game engine connectivity, award-winning character and game play design tools like UVW Unwrap, Render-to-Texture and Radiosity, and the flexibility to fit into any pipeline.

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Panzer Dragoon Orta courtesy of SEGA and Smilebit/SEGA

Tom Clancy's Splinter Cell™ courtesy of Ubi Soft Entertainment

Battlefield 1942 courtesy of Digital Illusions

3ds max™ 5
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Images courtesy from left to right Panzer Dragoon Orta Original Game © SEGA CORPORATION © Smilebit Corporation/SEGA CORPORATION, 2002, Tom Clancy's Splinter Cell™ - © 2002 Ubi Soft Entertainment and Battlefield 1942™ - © 2002 Digital Illusions. All rights reserved.

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Visit the Discreet booth #1318 at GDC 2003
San Jose Conference Center
San Jose, California, March 6 - 8

The Best in Game Development Technology

Pixomatic Rendering Technology

Now you know what Michael Abrash and Mike Sartain have been up to! Designed for today's games, **Pixomatic** is their new software renderer that provides MIP mapping, bi-linear filtering, alpha-blending, alpha-test, point sprites, multi-texture, 32-bit and palettized textures, **DOT-3 bump mapping,** fog, specular, **stencil and z-buffering,** indexed primitives, multiple streams, high-speed blitting, and more! Pixomatic uses runtime code generation to create **optimized MMX, 3DNow!, and SSE** code on-the-fly! You will be amazed at its speed (what else would you expect from everyone's favorite optimizer?)! **Target the mass market** - don't let ancient 3D cards, buggy 3D drivers, or lack of 3D hardware prevent people from playing your games!

Bink Video Technology

The very best video codec - make your videos shine! Unrivaled quality **(better than DVD** and MPEG II). Up to **three times faster** than other true-color codecs. Perceptibly lossless, **8 to 1 audio compression.** Decompresses to DirectDraw, DIBSections, YUV overlays, or any other memory. Available for Win32, MacOS, Xbox, and now **Nintendo GameCube.** Think Bink!

Granny 3D 2.2

Granny is a **sophisticated dynamic 3D animation system** with an optimized run-time engine that delivers incredible performance in a tiny memory footprint perfect for consoles, PCs and Macs. **MAX & Maya** plug-ins export materials, multiple vertex UVs and colors, mesh data, and complete animation and skinning information. Granny also now includes **amazing normal map generation** - give Granny a high and low-res model and she'll build the normal map! These features, plus advanced camera control, collision detection, animation and texture processing, MIP-map generation, and **Bink and S3TC** texture compression, all add years worth of features to your game in just a few hours of integration time!

Miles Sound System

The ultimate sound system for PC and Mac! Miles supports 2D and 3D audio, MIDI with DLS, streaming, CD audio, **DSP filtering, MP3 playback (patent rights included), Internet voice chat** (2900, 2400, and 1200 bps codecs), Creative **EAX 1, 2 & 3,** Aureal **A3D 1 & 2,** RSX 3D, DirectX 7, Dolby Surround, QSound, **super-fast software EAX emulation,** and more!

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